SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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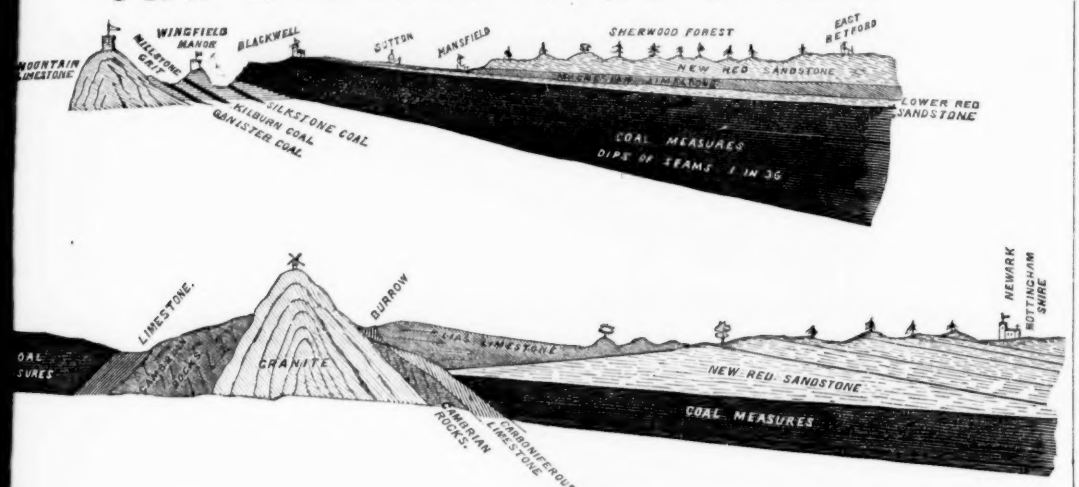
THE MIDLAND COAL FIELD.



Original Correspondence.

THE MIDLAND COAL FIELD.

rmian Marl Sandstone and the Upper Magnesian Limestone the Upper Coal Measures in the counties of Nottingham astern part of Yorkshire in passing through the central e coal field *via* Shire Oaks and the ancient Forest of Sher- the east of Mansfield, Nottingham, and through the Vale r. The eastern division is undulated with round hills, not re than 100 to 200 feet above the lowest lands. The forest a whole, gradually rise from west to east, till they attain rable elevation, the average height of country is about 150 e the level of the sea. The following geological formations, ding order, occur in this district:—

Keuper	Upper Keuper marls and sandstone.
	Lower Keuper marls and sandstone.
Bunter	Pebble and conglomerate beds.
	Lower soft red and mottled sandstone.
Permian	Upper magnesian limestone.
	Red marls and sandstone.
	Lower magnesian limestone.

al measures over which the country is occupied by the New l and Magnesian Limestone, and the depth to the coal will vary according to the thickness of the above measures. nesian through most part of the section; the thick rocks nearly exact double carbonates of lime and magnesian, but r beds contain only a small percentage of magnesia; they ch in texture and hardness. The Lower Sandstones are pebbly, and much resemble red varieties of soft millstone e upper sandstones and clays are of red colours. This im- Midland coal field, which extends into the counties of York- rbyshire, Nottinghamshire, and East Leicestershire, is one nce of formation, which, from one extremity to the other, s than 70 miles, and an average of 25 miles in breadth. The sures of Derbyshire and Yorkshire occupy an area of from 00 square miles, and contain fifteen workable seams, having e thickness of 40 feet of coal. The upper and lower strata ter county present a thickness of from 2000 to 3000 feet; ower series, including the millstone grit, Yoredale, and scar e, with coal and shales, have an additional aggregate thick- early 3000 feet.

east and south-east these extensive coal fields are bordered rmian deposits, under which they dip, and to the north by the lofty moorlands of the millstone grit. But what- be the amount of coal in reserve treasured up in this d, it obviously does not in the least detract from the vast ce of forthwith availing ourselves of every possible infor- d means for the discovery and development of new de- the precious mineral, and which we are so desirous of de- ing do certainly exist at accessible depths beneath immense he secondary formations. The general aspect of the New stone—and which sandstone covers the coal measures of nd coal field as with a mantle—is marked everywhere by ively gentle features, easily swelling undulations, relieved there by picturesque cliffs of sandstone over a pleasant no part of England does the sandstone of this series make e than 1000 feet above the sea, one of the most conspicu- the ridge of Nottingham Castle.

g east from the mountain limestone at Crich, in the dis- ix miles you pass from the lowest coal seams to the upper he coal measures then pass under the magnesian limestone ; in Ashfield, Notts, the limestone dips at 3° for a distance miles, when the limestone rises into small hills, but the ually inclines towards the east. The limestone passes out nder the New Red Sandstone, but in the brooks and val- be seen at the surface. I have not the least doubt but s away as it extends towards the east, and the dip is very gradual. There is no doubt but that the coal measures will be found at less depth than is supposed.

Section No. 1 shows this district, distance 27 miles. In Section No. 2 we pass over from the Leicestershire coal field *via* Mount Sorrel, and from the granite rocks to the lias limestone at Barrow, and in a north-eastern direction through the Vale of Belvoir, and *via* Bingham to Newark-on-Trent. A very large portion of the eastern part of this district is overlaid with the Permian marls and sandstone, and under which the coal measures are, and which coal field is a continuation of the Midland coal field. There is no doubt but that the secondary formation will be very much thinned out to the east, and that the coal measures will be found at a workable depth.

In Section No. 3 we pass from the Leicestershire coal field over a distance of 30 miles, and in which district bore-holes have been put down, and have bored through the red rock into the lower rocks without finding the coal measures, thus proving that we have a very large tract or district where the coal measures are absent. In continuing on Section No. 3 we arrive at Chilwell, and on the east side the coal measures can be seen setting in at angle of 15°. The Midland coal field comes up to this fault for a distance of ten miles north; and two miles west of this fault an isolated section of the Derbyshire coal thins out to the lowest beds, and the borings on the west, between this and Mount Sorrel, prove that the coal measures do not set in again. In continuing on from Chilwell, north-east, we arrive at Clifton Colliery, which is sunk on a continuation of the Midland coal field. The coal measures then pass under the New Red Sandstone and under the town of Nottingham. On the north-east of Nottingham the Top Hard, or Barnsley bed, is being worked, at a depth of about 475 yards. In passing over this section *via* Oxton, Halam, and Bilsthorpe, and as far as Tuxford, the coal measures will be found at a far less depth than is calculated upon, as the measures have a gentle dip, and here and there very large portions of the secondary formations have been eroded.

Taking into consideration that we have a very large tract of coal in the Midland coal field yet untouched, and which will become more and more important every year as the other districts get worked out. I don't find the rise in the measures, but a very gradual dip, and with the dip of the surface, and the thinning out of the upper formation, we have coal in store yet for centuries.

Wombwell, Barnsley. JONATHAN HARRISON, Mining Engineer.

THE BATTLE OF THE BORERS.

SIR,—Whoever wins the above battle will deserve to have a statue erected by the grateful miners of England. I am neither a patentee nor a manufacturer, and have no other desire than that the best horse should win. I have, it is true, backed the McKean drill to win, but should the Burleigh or the Diamond Drill turn out to be best I shall not hesitate about charging from one to another.

With respect to the Burleigh your correspondent, Mr. Davies, writes as if no other person had had the brains to adopt the "stretcher" except Mr. Brain. He is quite in error; there is nothing new in that principle. The stretcher has been in use all along by McKean and other inventors. The moot point is, not the speed or the power of this or that machine, but the *durability* of the machines themselves. Will the percussion principle or the diamond cutting principle gain the day? How long will a machine last that is continually trying to knock itself to pieces? Will it last long enough to answer its purpose and *pay* for itself? I cannot say how long one of McKean's "new" Drills will last, as I have not yet succeeded in knocking one to pieces; but I have had one in use for about three months, and it does not seem to be much the worse; but I will venture to say that if the new McKean drill will only last *six* weeks it will pay itself, and leave a handsome profit besides, which I will now endeavour to show. The cost of the machine with column and socket is 125*l.* The level in which I have the machine at work is about 8 ft. high and 5 ft. wide, and as it stood on the last bargain-day I feel quite certain that no miners in the world, by hand labour and with gunpowder, would have stirred it for less than 14*l.* per fathom. We let 20 fathoms to eight men at 5*l.* 10s. per fathom, therefore—

20 fathoms at 14*l.*	£280
20 fathoms at 5*l.* 10s.	110
Balance in favour of machine	£170
Cost of machine	125
Leaving balance profit	£45

We calculate that the eight men will complete the 20 fms. in about seven weeks. The machine, if it stands, will, therefore, have paid for itself, and left a profit of 45*l.*, independent of the enormous gain in time. Inasmuch as this same machine has during the last nine weeks, with only six men, cut 16 fms. and 5 ft. of ground at the same price, 5*l.* 10s. per fathom, without being much the worse, we may safely reckon upon its doing as much more, in which case it will have paid for itself more than twice over.

The machinemen have only worked "*five*" six-hour shifts every week, yet they have earned 28s. a week during the last month clear of stoppages. It requires 10 lbs. of dynamite at 2s. per lb. for every fathom of ground. If the ground is properly "laid in" and clear for action, three or four holes 6 ft. deep will cut a fathom. Each hole will get about 4 tons of stuff. It is, therefore, evident that if we could get the stuff cleared faster away, and the ground more rapidly "laid in," which must be done by *hand* labour, we could go at the rate of 1 fathom a-day.

We are compelled, owing to the cleavage of the beds, to blast upwards or downwards; we cannot blast sideways, and must, therefore, "lay on" at the top or at bottom. GEO. WM. DENYS.

Sept. 30.

FRUITLESS AND SILLY SEARCH FOR COAL.

SIR,—The present high price of mineral fuel, added to the vast development and extension of our coal fields within the last few years, has no doubt sharpened the desire on the part of capitalists to possess themselves of mineral property, and has led speculators to search for new fields. That any man or company of men having any knowledge of mining should, in these days of *Mining Journals, Colliery Guardians*, Mining Institutes, and geologically coloured maps of the county published with Government authority, should be silly enough, in defiance of theory and practice, to go and bore in search of coal in rocks 600 or 700 feet below the carboniferous rocks is something amazing. "Practical men" sinking a shaft in the lias, in the belief that they were in the pennystone shale of the coal measures, on Lord Hill's estate, near Prees; on another occasion a number of small farmers clubbed together their means, and ruined themselves by an absurd attempt to sink for coal in the Silurians, at Llandinam; and a similar abortive attempt was made on the estate of Mr. Walter Moseley under the supervision of a German, who was as ignorant of mining and geology as the Welsh farmers; and at this moment we have a company of Yorkshiremen—usually remarkable for shrewdness and common sense—actually boring for coal on the same estate at Buildwas in Silurian rocks. The thing is all the more preposterous from the fact that, 600 or 700 ft. above them, on the brow of the hill overlooking the valley of the Severn, the very bottom and base of the coal measures are to be seen coming to the light of day. The millstone grit crops out below them, and the Wenlock limestone shows itself next in the order of succession, and the next—the Llandowy formation—actually crops out in the bed of the Severn. Yet it is in the latter that the attempt is being made and that a bore-hole has been put down to a depth of 40 yards. It is palpable that every yard the men go down they go a yard further off the measures they so eagerly covet, unless, indeed, they intend going down to the Antipodes. The promoters of this foolish enterprise have not even the excuse of ascertaining what lies beneath the rocks. Next in the descending order may be seen on the surface at Shineton, Cressage, and Cound, where nature, as if to satisfy curiosity, has by that mighty machinery which has tilted the oldest and lowest formations of the globe brought them to the surface. On remonstrating with the man conducting the operation, he showed me some red earth brought up by the shell as being "kind and favourable." A red rock sometimes occurs in connection with the Caradoc sandstone, and it is not improbable they have got down to it.

Madeley, Salop, Sept. 30. JOHN RANDALL.

THE BORING FOR COAL AT CHILDS ERCALL.

SIR,—Paragraphs have appeared in the London and provincial newspapers relative to the alleged failure of these borings, and conclusions appear to have been arrived at altogether at variance with facts as they are known to exist, and also with the expectations both of the promoters of the undertaking and of experienced geologists who have visited it. The depth to which the boring has been carried at present bears no relation to that which I considered necessary in my report, made in 1869, to reach the workable coals of North Staffordshire, which I still believe are to be found beneath.

In the report referred to I alluded to the western or Lycett, and Madeley portion, as having an important bearing upon those of Childs Ercall, the most encouraging feasure of my mind being the presence of the entire series of these rich measures at the point where they dip beneath the Permian rocks in the direction of Ercall. The Lycett Colliery is intersected by faults, which necessarily add to the cost of working, and their effects being so great that the coals sometimes dip or rise 3 ft. in the yard. The most formidable of these run across the colliery with a down-throw on the south-west, or Market Drayton side, of 200 yards.

On the upper, or north-east, side some of the measures are partially absent, from having been thrown out at the surface, but on the Market Drayton, a down-throw, side they are present, and there is every reason to suppose that the series are complete on that side. Up to the present the younger and upper measures only on that side have been worked, and numerous shafts have been worked, and numerous old shafts are observable, which were abandoned 20 or 30 years ago, because the proprietors were not prepared to go deeper. The Crewe Company, who have secured mineral rights over several thousand acres of Lord Crewe's estate, have, however, of late put down new machinery, in order to reach the lower coals.

The 200 yard fault or faults alluded to bring in several bands of ironstone, and the Spendcroft coal, which is 5 ft. 6 in. in thickness on an average. Sections of the upper coal measures are visible in the cuttings on the Silverdale side of the line of railway to Market

Drayton, and these are succeeded by the Permians, of the thickness of which I then said I found it difficult to speak, but I added that my experience was that they were usually of least thickness where all the upper coal measures were present, and *vice versa*. I calculate the upper coal measures, consisting of clays, marls, and occasional yellow sandstone and coal, to be 250 yards to the "Top Red Mine," and taking Silverdale as a guide, I estimated the depth required to reach the more valuable coals to be little short of 665 yards from the surface, or 565 yards from the top of the Permians. It happened, unfortunately, that the bore-hole was commenced in the pebble beds of the Bunter instead of in the Permians, which appear at the surface at no great distance, and they thus added 100 yards of unnecessary red rock to the strata to be gone through. Nothing has happened since then, it appears to me, to alter the supposition that an extension of the North Staffordshire coal field is to be looked for in the direction of Childs Ercall. The magnesian limestone crops out near, and on a piece of the limsstone being shown by Mr. Corbett to the late Dr. Buckland he exclaimed—"You are on the coal, and not far from it." Since writing thus far I have received a communication from Mr. Bosworth, under whose able superintendence the borings were carried on, and in reply to my enquiries he assures me that the borings did not cease from any change of opinion as to the existence of the coal measures, but because Mr. Corbett had, not unreasonably, grown weary with the time and expense entailed. The expense, however, was nothing like the amount stated in the papers, but a very reasonable sum as compared with the difficulties and time of the operation. Mr. Bosworth adds, and I quite agree with him, that his opinion is that the coal measures undoubtedly underlie the Permians, although it may be possible that they have been so denuded as to be bare of the other seams. He also says the borings are to be resumed.—*Madeley, Salop.* JOHN RANDALL.

ECONOMISING COAL IN STEAM BOILERS.

SIR,—I have before called attention through the Journal to the matter of economising coal in steam boilers by using as a covering some non-conducting substance, such as Keenan's Papier Mache. I now suggest a simple and inexpensive method of heating the feed water, which I have practised for some time with great success.

I discharge my exhaust steam into a drain through a 4-in. pipe about 15 ft. in length. Inside this pipe I place my 1-in. feed, and find the water enters the boilers at 190°. With another boiler the exhaust steam goes through a cast-iron chest, inside which is an arrangement of copper pipes through which the feed water passes. It cost me 10*l*., but I find the former simple arrangement preferable. I think Keenan's Papier Mache repays its cost in four or five months. ECONOMY.

HIGH-PRICED COALS—MONOPOLY AND EXTORTION.

SIR,—May I be permitted to offer a few concluding remarks and observations, in the pure spirit, and with the only object I have in view, of "helping those who deserve help, but who cannot help themselves?" In submitting calculations of coals cost at the pit's mouth at 9s. per ton I have proved, and am assured by those who are actually raising coal, that 9s. is over-rated; and I have a printed announcement now lying before me that the coals can be, and are now, raised at the pit's mouth at only 7s. per ton! This being a fact, I cannot be charged with exaggeration or misrepresentation. Admit this, and the question naturally arises, Are the pit owners justified or warranted in the addition of from 100 to 150 up to 200 per cent. profit before the coals are freighted or transferred to consumers? If so there is an end to my arguments and advocacy, and the public must submit to the gross imposition unless they rouse themselves, and determine positively that only a fair and reasonable profit shall be made on coals supplied from the pit's mouth. I have read a statement that a certain lord (who is a great coalowner) is anxious to prevent monopoly, and offers to supply coals from the pit's mouth at 18s. per ton, which modest and (supposed) "generous offer" secures him a profit of 100, or cent. per cent. on his prime cost!

Unfortunately, this monopoly and extortion extends beyond coal supply, for on all sides we look around and see daily these vile principles carried on and imposed on our food and necessaries, in flour, potatoes, meat, fish, poultry, butter, eggs, &c., all more or less now selling in markets at exorbitant prices, consequent on enormous profits, mainly introduced and worked up by the middle men, who, as I before stated, create the false position by establishing imaginary panics, and sharing in the plunder-profits with the producers and final salesmen or dealers. This fact was fully exposed in the *City Press*, and again in the *Times*, in connection with reports on high prices of meat, and the only remedy for the evil is in the hands of the public, who, if they will not adopt the curative remedy must not continue to complain of impositions. But the poor and needy, who cannot help themselves, will necessarily be compelled to bear the burthen, or go without their necessaries and home comforts. I have done my part, and all I say to others in conclusion is—Follow the lead, and do your parts. W. AUSTIN, C.E.

Dartmouth-terrace, Bermondsey Park, Oct. 1.

MINE MATERIALS—SUPPLIES BY TENDER.

SIR,—May I beg the favour of a few lines in the Journal on a matter I and many others consider of vital importance to mining companies generally? The subject is one that I think deserves the earnest and early attention of all interested in the mines of Cornwall and Devon or elsewhere. The supply of material of every kind by tender is the object upon which I address you, and long experience tells me that were it carried out in its strictest integrity many thousands of pounds might be saved to the profit and benefit of shareholders. As it is now, the supply of all kinds of mine material is regulated not particularly according to the wants of the mines, but as it may suit the convenience of merchants. Many pursers and managers will doubtless set their faces against such an intrusion upon their privileges, and probably for reasons best known to themselves; at the same time, it behoves adventurers if money can be saved (and there is little doubt about it) to insist upon any scheme that will tend to decrease the heavy losses and consequent demands on their resources. As things go, month after month the same merchants are sending in supplies, whereas in an open market, where competition must exist, there is all the probability of the best of material being supplied at considerably less prices than are now being paid for such articles as coals, iron, timber, powder, and all other necessaries for the working of mines. It is a pity shareholders do not look a little more into affairs of this kind; there is plenty to learn, and were they to pay more attention to the items of costs and expenditure instead of taking for granted all they see in the bimonthly or quarterly statements furnished them, I fancy they would soon discover many little matters that would require investigation. There is much may be said on the system of supplies, and if some of our great guns of the county would take up their pens and use their tongues in our behalf they may rely on receiving all our congratulations. it is very well known that agents of many suppliers are stumping the counties in search of orders, and are doubtless very profuse in their liberal promises of "palm oil."

In order to carry out the system of tender it would be necessary when pursers and managers rule supreme to appoint a committee of (say) three or more shareholders to invite tenders, and accept or reject as they in their judgment may think best in the interest of the companies they may represent. When committees and directors exist it should be left to their discretion. The question will doubtless be asked what can a committee know of the quality of candles, coal, &c., and all the requirements of a mine? In answer I admit there is a difficulty, but when they have honest men as agents there is little to fear but that they would fulfil their duty to their employers, and guide them in their decision, as it must to a certain extent rest with them to determine as to quality and between sample and bulk. There are some, doubtless, who for a paltry gratuity would connive with suppliers, but on the first discovery of trickery short work should be made of them. On the other hand, there are many highly respectable firms who are far above such unfair practices, and who would be only too glad to compete with those now luxuriating on large profits; and I see no reason why we should not have three and six months contracts for the supply of material of all and every kind, from a halfpenny nail to a ton of powder. How many outside merchants are contributing their hundreds and thousands of pounds towards the development of Cornish mining, and why should they not have the same opportunity as those who subscribe little or nothing, send in rubbish, and laugh in their sleeves at the gullibility of foreign adventurers?—*London, Sept.* 29. X. Y. Z.

GOLD MINING ON THE RIO DEL ORO, MEXICO.

SIR,—These gold fields, situated in the celebrated Distrito de Mina, Republic of Mexico, are opening up most profitably. In the El Puerto concession a lode has just been intersected by an adit brought up under some old superficial workings, the vein being composed of sulphurets, for the calcining and proper treatment of which the Puerto Company have not yet proper appliances. The superintendent, Mr. W. Grove, has, by order of the directors in Mexico, sent a parcel of 1 ton 16 cwt. to Messrs. Barron and Forbes, shareholders resident in that city. By those gentlemen it has been sent on by Vera Cruz and Southampton to London, consigned to Messrs. Johnson and Matthey, of Hatton Garden, assayers to the Bank of England, who, after bruising down the entire parcel, found a general assay to yield the following result:—Gold, 17 ounces per ton of 20 cwt.; silver, 28 ounces per ton of 20 cwt. It has since been submitted to public tender for sale, and realised 72*l*. sterling per ton, and gives a profit of near 200 per cent. after paying all expenses of extractions, freights over 200 miles land carriage, by ocean steamers, and treatment here.

Other veins are being continually discovered, but on the east and west banks of the Rio del Oro and the Esperanza mines are increasing their gold returns and drawing quite a large population to the new mining district. The most ample protection is being given by the authorities to the working companies, which are composed principally of English and American residents. There are deep runs of auriferous ground in these possessions similar to the golden gutters of Australia and California, which have yet to be explored, the shallow alluvial having afforded a living to hundreds of the natives for many years past, who extract the gold from the gravels by washing in wooden bowls the batea. It is confidently expected that quite a little new California is coming into existence in the Distrito de Mina. More parcels of sulphuret will be sent from time to time for testing in Swansea or Freiberg as the Puerto and Esperanza Mines progress and pending the construction of the reduction works on the mines now in progress. J. H. PETHERICK.

Finsbury-circus, Oct. 2.

GOLD IN NOVA SCOTIA.

SIR,—The popular agent of the Bank of Montreal, at Halifax, Mr. E. C. Jones, has courteously furnished me with the annexed abstract, which is of interest, as confirming the ordinarily high standard of Nova Scotia gold. Thirteen bars of bullion, weighing in the aggregate 2240½ ozs., lose only 1½ (1·55) ozs. in re-melting, show an average fineness of 953 thousandths (strictly 952·923), and a mean coin value of $19·78 or 4*l*. 1s. 3½d. sterling. These facts are worth noting by readers of the Journal engaged in gold-mining operations, as it is manifest that capital can be remuneratively employed in a country where the average yield of gold per ton of quartz, and the value of the gold, are so uniformly high as in Nova Scotia. The reduced standard of the Waverley and Uniacke bars was on account of the amalgamated copper plates having been scraped too closely. The bar from Gay's River was composed of alluvial gold.

Sept. 30. A. HEATHERINGTON.

United States Assay Office, Memorandum of Gold Bullion from Nova Scotia:—

District.	Quantity assayed. Weight before melting, ozs.	Weight after melting, ozs.	Fineness. Thousandths.	Gold value. Dollars.	Silver value. Dollars
Montagu	565·12	564·77	951½	11,225·36	
„	714·84	714·26	957	14,130·16	
Waverley	52·11	52·09	934	1,005·73	
„	48·38	48·34	947	946·31	
Sherbrooke	313·77	313·60	962	6,236·35	
„	82·48	82·40	945½	1,610·53	
„	42·58	42·50	964½	847·37	
„	120·74	120·69	953	2,378·87	
„	152·30	152·21	951	2,992·97	
Wine Harbour	74·24	74·16	963½	1,477·16	1·81
Gay's River	19·10	19·08	953½	376·07	0·36
Uniacke	37·50	37·48	935½	724·80	1·98
Tangier	17·35	17·38	960	343·31	0·35
	2240·51	2238·96	Mean 953	44,294·99	4·50

NOVA SCOTIA GOLD FIELDS.

SIR,—It is a common remark among mining men in the City that there are no dividend-paying gold mines in Nova Scotia. With the exception of the ELDORADO there are certainly none owned by English companies, who have generally wasted their capital in the purchase of expensive and often useless machinery, or whose agents have spent more time in drinking or amusements than in the affairs of the mine; but that there really are prizes to be met with in Nova Scotia is evidenced by the following list:—

The ALBION Mine, in the Montagu District, about eight miles north of Halifax, belongs to the Messrs. Lawson Brothers, Scotch civil engineers, who purchased it of an American company in the autumn of 1869. The Americans sold it as a forlorn hope after spending 8000*l*. in development. The new proprietors went to work vigorously and systematically, and have cleared about 12,000*l*. to date, after paying all expenses. The vein averages 4 in., and contains much arsenical pyrites, which is rich in gold; the yield varies from 2 to 15 ozs., but averages 5 ozs.; it is opened by seven shafts for a length of 750 ft., the deepest being 250 ft.

The TUDOR Mine, in the West Waverley district, 12 miles west of Halifax, the property of Mr. Leopold Büskner, an enterprising German gentleman, from a vein 12 in. wide, exploited to an average depth of 250 ft. on a length of 750 ft., yielded 18,000 ozs., or 72,000*l*., nearly half of which in one year, 1865.

The WESTLAKE Mine, in the Uniacke district, 30 miles west of Halifax, yielded 234½ ozs., from 13 tons, but the owners greedily divided all the profits, and kept no money in hand for working expenses. The yield fell off, the concern got into debt, and was finally bought in by one of the creditors at the sheriff's sale.

The OPHIR Mine, in the Renfrew district, 33 miles north of Halifax, from 450 ft. of a 12-in. lode, worked to a mean depth of 300 ft., yielded 18,000 ozs.

The DONALDSON Mine, at Oldham, 33 miles north-east of Halifax, on a vein about 4 in. wide, lately yielded 115 ozs., from 26 colonial tons; some of the quartz went as high as 7 ozs. per ton.

The WELLINGTON Mine, at Sherbrooke, has produced to date about 20,000 ozs.; the greater part of the gold was obtained from a lode 13 in. wide, and from workings 180 ft. long by 520 ft. deep.

The PALMERSTON Mine, at Sherbrooke, the first year of its working returned $43,000 net profit.

The BOULDER Mine, also at Sherbrooke, consisting of only 1½ areas, or 225 ft. on the lode, worked to a depth of 200 ft., returned 8000*l*., or 50 per cent. over and above the purchase price and cost of working.

The PROVINCIAL Mine, in the Wine Harbour district, as stated in the report of the Geological Survey of Canada (1868) by Dr. T. Sterry Hunt, returned $200,000 in six months, from a couple of areas on the Hattie lode.

The ELDORADO Mine, in the same district, now worked by an English company, and superintended by an experienced Cornish captain, had been developed at great expense and loss by its previous American owners. Under the new proprietary it has become a decided success, as they have already paid over 6000*l*. in dividends to the shareholders out of a nominal capital of 25,000*l*., of which 21,000*l*. was paid for the property, and 1500*l*. for additional machinery.

Some of these mines are now idle, because the owners ate up all the profits, and made no reserve for a rainy day. The experience of gold-quartz mining proves that in all veins there are poor and sometimes barren streaks of several feet in extent, both laterally and in descent; that it is sheer folly to abandon a mine because of a temporary impoverishment; and that, to meet the contingencies of drought, flooding, or stoppage of the mill, every gold mining corporation ought to keep a reserve working fund of 20000*l*. or 30000*l*. in hand. The Hayward Mine, at Grass Valley, California, and the Hustler's Reef, at Bendigo, Victoria, are instances of the inevitable recurrence of rich streaks in depth after a rich outcrop and gradually decreasing yield. That the same rule obtains in Nova Scotia is shown by the recent returns of the ALBION and ELDORADO Mines above described.—*London, Oct.* 1. ACADIENSIS.

COAL IN VIRGINIA.

SIR,—Allow me to write a few words of caution on the above subject, especially as I can well remember the signal failure of certain English companies formed about 25 years ago to work coal mines in Virginia. Both London and country newspapers have been inundated for some weeks past with elaborate articles on the decline of coal mining in England, and the wonderful stores of coal and iron in Virginia. How all this would end was clear enough to the initiated, and accordingly we are now told that certain benevolent Americans are now in England offering coal lands in Virginia at from $20 to $50 per acre. On this we will observe that there is capital and energy enough in the States to take up and develope any amount of mineral property without offering it to us, as may be seen from the great progress now going on in Ohio and Pennsylvania; we are, therefore, driven to the conclusion that these lands are now offered in England because no one will buy them in America. But the greatest absurdity of all is the statement now being made that several thousand tons of coal are now on the way from Virginia to England. Those acquainted with the subject know well that if shipments of coal are ever made from America here they will come from Cape Breton and Nova Scotia, where the coal is as good as ours, and the mines close to the sea. Yet we hear of no shipments as yet from those countries, a clear proof that in spite of high prices here it is still far the cheapest to procure our fuel at home. CAUTION.

THE FLAGSTAFF, LAST CHANCE, AND TECOMA MINES.

SIR,—Your correspondent, Mr. W. E. Surtees, has fallen into an error, which I trust he will pardon me in endeavouring to correct. Referring to the Flagstaff, Last Chance, and Tecoma mining property, he would appear to insinuate that Col. Stanford's brother the Governor of Utah. Than *ex*-Governor, Leland Stanford, now president of the Central Pacific Railway of California, a more honourable and conscientious man never breathed, nor one less capable of lending himself to a doubtful transaction. In this opinion I am happy to be fully borne out by my friend, Lieut.-Col. Boyle, of the staff of Governor Bradley, of Nevada, just arrived from that country, and who feels, with myself, the gratuitous injustice done towards the ex-Governor by dragging his name into a matter with which he does not appear to exist a shadow of evidence that he has ever possessed the slightest connection. Of Col. Boyle, allow me to say he is a gentleman who has been associated with the mining interests of the Pacific Coast for a quarter of a century, and he is well known for the strictly unimpeachable nature of his transactions therein during that extended period. The present Governor of Utah is, believe, the Hon. George L. Woods, who is totally unconnected with mining matters, and one distinguished alike by his urbane good spirit and integrity.

My sole object in giving these particulars is not only to correct an error but to point out the impropriety and danger of reckless introducing the names of parties personally unconnected with transactions referred to in print or otherwise, when they may claim immunity against charges or insinuations in which their relatives may be implicated. As well might your correspondent endeavour to fix a stigma upon John Smith, of Philadelphia, because on the direction of an endeavour to drain the Red Sea or the Atlantic the name of John Smith, of London, occurs. W. WHITE.

Laboratory and Assay Office, 25, Finsbury-place, E.C., Oct. 1.

THE FLAGSTAFF, LAST CHANCE, AND TECOMA MINING COMPANIES (LIMITED)—£700,000.

SIR,—The amount of British capital invested in these Utah companies is so large, and the night enveloping them so dark, that it has now become necessary to turn the bull's-eye on the depths of their mines and the recesses of their board-rooms. Sir Alexander Malet, hitherto a diplomatist, in age aspires to be a Cityman. And it is hardly in accordance with human nature that he should be ready to realise that he has become the simple hooked stick by which the gold of himself, friends, and constituents is drawn in by a set of persons, some of whom may be described as men of letters—if the number of letters be limited to three.

Tecoma 10*l*., such as in confidence on the statement of the directors I bought short time ago at a premium, were, in last week's Journal, advertised at 15*l*. to the Flagstaff, that the shareholders may know to whom to feel grateful for state of their property, they should obtain a list of the officials from the Secretary. I was mistaken in supposing no auditor had been appointed by the shareholders, consequence of dividends being systematically paid by the directors without sanction of that officer.

Now, whose interest was it that fictitious dividends should be paid on the Flagstaff and Last Chance, and that there should be no accounts on this side of the Atlantic? The interest of those who were vending the Tecoma Mine, and floating it as a company, and who were selling their own shares in all three companies. Who were vending, who were floating, who were selling their own shares? The directors of the Flagstaff, including, so far as his own shares went, Captain Forbes, R.N., the sender of favourable telegrams from America. But, if the directors were known to be selling, it would cause the public to sell, and the market would be spoiled. So the sold shares were not sent in, and Sir A. Malet (remarkable among his acquaintance (innocently, I have no doubt, on his part) that the "Bears" were making fictitious sales to lower the market, and could not deliver even what they sold. Sir Alexander Malet had also been taught to say that the "Bears" had stolen accounts. As Mr. Arthur Vincent, a shareholder in the Flagstaff, writes to me, by a letter dated yesterday, that he has "been recently assured at the office that Sir A. Malet has been increasing his holding," implying his confidence in the concern and its management, and I see no inch of firm ground so long as the present board remains in office—for who could trust him, whom it might send to Abyssinia? I beg to enclose extracts from an important correspondence by Sir A. Malet, Mr. Gole, the Flagstaff secretary, and myself—merely observing that the latter part of the correspondence is that which is placed, and should be read, first; and that what was written on July 25 in the board-room of the Tecoma should be contrasted with what was written on Aug. 30 in the uncorrupted atmosphere of Plymouth—no brother director being near. Your readers must then judge whether general meetings are now necessary, and, after them committees of investigation. And those shareholders who are on the spot can refer, in the offices, to the deeds of the companies to see whether anything be said in regard to the number of shareholders requisite to call general meetings, which is otherwise governed by the Joint Stock Companies Act.—*Trowfield, Sept.* 29. W. E. SURTEES.

Extracts from Mr. Surtees' letter to Sir Alexander Malet, dated Aug. 29, 1873:—

"Now some persons must have deceived you, for you would never have allowed regular dividends to be paid monthly, as if earned, when, in fact, the money, or part of it, was only borrowed.

"But more than this:—On July 21 last, I wrote to the Secretary of the Flagstaff pressing most urgently that the accounts, so long promised, should be furnished, and, if my letter had remained unacknowledged, or received only a formal acknowledgment, I should have recommended those friends to whom I had mentioned the three Utah companies to sell their shares, and I should have myself sold out, though at a considerable loss; but, on July 25 last, you wrote your brother Governor privus, desiring that he would show it to me, a letter marked, indeed, 'private and confidential,' though, of course, that, which turns out to be a misstatement of matters of fact, which should be within the narrator's knowledge, however ignorantly it may have been made, ceases, as soon as its true nature is proved, to be under the protection of a private and confidential character.

"In that letter you used these words—'He (Captain Forbes) has already attained such a point in confirmation of his estimates by selling ore till he *has extinguished debt*' (the underlining is yours) 'that we can do no otherwise than rely implicitly on his ability to carry out all he has said he should be able to do.'"

Yet at this very time I find from communications to me from the Flagstaff office, received this week, that the mine was then, and is now, deeply in debt. Of course, I do not profess to know who, to you and through you—a gentleman of the highest tone and feeling—has played the part of a traitor; but I venture to say, beware of him for the future. And such a friend as I have suggested (Lord Hatherley or some other of his old friends who had risen to the top of the legal profession) would be useful in rescuing you from his or their deadly grasp.

Extract from letter of Sir A. Malet to Mr. Surtees, dated Plymouth, Aug. 30, 1873:—

"Every word of my private and confidential letter to my brother I am prepared to prove by Captain Forbes's letters and telegrams. It is open to you, as it is to anyone, to impugn that gentleman's good faith. I mean to move that he be called home at all risks to justify his proceedings. I can answer for my own good faith."

Extracts from Mr. Surtees' letter to Mr. Gole, Secretary of the Flagstaff, dated July 21, 1873:—

"It is quite clear, since a run is being made against these investments, and since the directors of the Flagstaff undertook to publish monthly accounts of that company, that they are bound now to publish the accounts of that company, so that proprietors may be satisfied of the financial state of that company. Generalities, or that this or that has been got out of the mine, without telling us what expenses have been incurred, are quite insufficient.

"An accurate balance-sheet, justifying, if they can be justified, the dividends of

the Flagstaff, would have prevented the occurrence of such cases—*i.e.*, losses by those whose names did not justify their keeping when a great fall occurred—and would prevent their recurrence; but whether the balance-sheet justifies the dividends or not they (the directors) are equally bound in honour and law to publish it, because long ago they promised it, and people bought and held on the faith of that promise. I beg you will communicate this letter to your directors immediately. I will add that yesterday I wrote to a broker to purchase a few more shares, in order to do something to check bringing down prices by fictitious sales.

Extracts from Sir A. Malet's letter to Mr. O. W. Malet, in answer to Mr. Surtees' letter to the Secretary of the Flagstaff, of July 2, 1873:—

"Mr. Surtees' letter of the 21st inst. was laid before us to-day. He will get the same sort of formal acknowledgment which, as a rule, is sent to all letters addressed to him. I do not, however, like to leave your friends without a fuller answer. If Capt. Forbes had not gone abroad and taken the matter in hand, I cannot say what might not have happened; but his accounts of the capabilities of the mine, and its ability to retrieve all *mismanagement*, have been so positive, and he has already attained such a point in confirmation of his estimates, by selling ore till he *has extinguished debt*, that we can do no otherwise that rely implicitly on his capability to carry out all he has said he should be able to do. I incline to this latter course—*viz.* announcing that after August quarterly dividends would be paid—because we could, at the same time, announce the beginning of a reserve fund. Late sales at low rates stated have to our *certain knowledge*, been wholly fictitious. Very few transfers have come in, and the "Bears" cannot deliver. We have several complaints to that effect. What I tell you of Flagstaff applies equally to Last Chance and Tecoma. Tecoma accounts and plans of the mine are on their way, and are impatiently expected."

FLAGSTAFF, LAST CHANCE, AND TECOMA MINES.

Sir,—As a large holder of shares in all these concerns, I think it is quite time that the shareholders knew something definite respecting the position of the properties which have, in my opinion, until lately been occupying false and pretentious positions in the Money Market, through the regular announcement of "puffs" which the directors should have known to be false, and only calculated to mislead. I shall be glad to co-operate with others in calling a meeting of the shareholders, so that the present state and prospects of the concerns may be honestly made public. If it is true, as I am told, that the Flagstaff was bought from the American owners at 12,000*l.*, and the Last Chance at 5000*l.*, surely such prices could never have warranted their introduction to the English public at 300,000*l.* and 100,000*l.* respectively. I believe the position of the Flagstaff Mine at the present time is as follows:—

Owing to the mine	£12,000
Owing to an American gentleman in London, money advanced at ruinous rates, to pay past dividends, against ore to be produced	40,000
Total	£52,000

I believe 60,000*l.* would be nearer the mark, or about five times the original value of the property—so that if only a dividend of 15 per cent. had been paid the mine would merely have been "above water." With this enormous debt on the property, the output decreasing, and the signs of the approaching exhaustion of the present lode, it is quite time that the shareholders had an explanation from the Directors.

I believe the lender of the 40,000*l.* is connected in some way with the American brokers, and I cannot see how he will ever be paid; perhaps he will ultimately reclaim to the property, for I hear that the board have entered into an arrangement to pay him all the receipts from the ore produced, only retaining enough to cover expenses. This arrangement should be made public. Even if the mines turned out 5000*l.* weekly, no dividend could be paid for twelve months, for the expenses in connection with the mine are enormous. The shares are now not honestly worth buying at any price, and who are to blame? None but the directors, in my opinion, who should never have lent themselves to such a scheme in the first instance.

As regards Last Chance, I consider the condition of the mine is quite as bad as Flagstaff. Water in the mine, no outputs lately, and the original value of the property are damning criterions to judge by. I believe the debt on this mine is also very large. Shareholders have, in my opinion, had the "last chance" of a dividend.

The Tecoma Mine will, I think, turn out ultimately the best of the three, though at present everything in connection with it looks bad enough. The new manager will be out there by Oct. 9, and we shall then have regular reports from him. He is highly thought of in all mining circles both for honesty and ability. The tonnaza of which we heard so much turns out to be utterly worthless; notwithstanding this, I believe the mine will eventually develope better than either Flagstaff or Last Chance, and that a dividend—not 30 per cent.—may be expected in January next, and this statement I have good grounds for making. Why should Captain Forbes have sold all his shares in these mines after the reports we have had from him, and how is it that Mr. Maxwell is returning home at this time? These questions when taken into account with the near approach of winter, when working will be impossible, or nearly so, are occurring to all the shareholders with whom I have conversed, and, no doubt, help to make the situation look more gloomy than ever.

A Large Shareholder in Flagstaff, Last Chance, and Tecoma.

FLAGSTAFF MINE, AND ITS MANAGEMENT.

Sir,—I have received the circular from the secretary of the Flagstaff Mining Company. Will you, Sir, allow me to state that many of the shareholders, of which I am one, to say the least, doubt the competency of the board to conduct the affairs of the company. Those who did not doubt before must doubt now, when it is only proposed to spend 50,000*l.* more in developing the mine at a time when no reliance can be placed in the telegrams which the directors have hitherto published weekly, and which are strangely at variance with the price of the shares.

The plans and sections of the mine which Mr. Maxwell sent over for the information of the directors and shareholders are, it appears, useless, in consequence of the proper details respecting "stopes and reserves" not being supplied. They are, we are told, to be referred to him for the required particulars, although this is Oct. 2, and Mr. Maxwell is to retire in November "on account of ill health," and it will take three weeks to get them back to Utah.

The most important paragraph of the weak circular is the last. I do not think it is consistent with the interests of the company that the directors should be permitted to appoint a successor to Mr. Maxwell without the sanction of a general meeting. That successor ought to be a gentleman known to the mining world as a man of high scientific and practical knowledge, and with a character for truth and honour above suspicion. The company can afford to pay such a man—anyone of less qualifications, or one with all these qualifications, but only vouched by the directors and their friends would carry no weight with the shareholders or the public. Capt. Forbes, who it is said received 10,000*l.* last spring for going to Utah to overlook the affairs of the Flagstaff, Last Chance, and Tecoma Mines, was engaged but up to November, and will retire from the service of the company at that time. If this be true, I do not regret his leaving, as he has been unable either to supply the company with proper accounts or with reliable telegrams; but, as a director of the company, he is bound to account to us for his acts, as all the other members of the board, and I advise my brother shareholders to call a meeting for the purpose of making a full enquiry into the affairs of the company. H.

MINING IN UTAH—LITTLE COTTONWOOD CANYON.

Sir,—Having received a long communication from a relative in Utah with reference to the Little Cottonwood Canyon, in which I know a large number of the readers of the *Mining Journal*, as well myself, are greatly interested, I extract such portions of the letter as are not of a private nature, and place them at your disposal. I shall give them in the words of my correspondent:—"On Aug. 9, I rode up Cottonwood Canyon, one of if not the roughest mountain roads in Utah. In well-kept England such a road would be called no road, and assuredly it requires quite a stretch of the imagination so to designate such a rough, rocky, canyon bottom; but a road they call it here, and over it many thousands of tons of ore have been hauled to the railroad, and to smelters near the canyon's mouth. Upon reaching Alta City, soon after noon, I walked to the Cedar Mine and Tunnel. This property is owned by the Wachusett Mining and Smelting Company; it is a fine property, and some day will be very valuable. The vein is over 18 ft. wide between the walls, and an average sample of ore taken all across the vein assayed 35 per cent. for lead, and 49·58 ounces of silver to the ton of 2000 lbs. One shaft is down 82 ft., and the tunnel has been run in some 174 ft. After remaining a few hours at the Cedar Mine I walked around the hill towards "Grizzly Flat," and then went over to the Emma Company's property. I walked into the mine, or rather tunnel, as far as I could get permission to go—a few hundred feet; and as the ore cars passed me I obtained the sample of Emma ore I mailed to you yesterday, with the specimens of Cedar, Magnolia, and Choctaw ores. The two last mentioned are owned by the Far West Mining and Tunnel Company.

At the Emma Mine I found a number of men engaged in washing, screening, and sorting the ore; it is a tiresome looking process, and must cost a great deal, but the quality of the ore is such that unless this or some other kindred process is adopted to get off the dirt and fine sand it would not pay to ship down the canyon. The creek is discoloured for miles by the yellow dirt washed from the Emma ore. Attwood is shipping down the canyon from 10 to 20 tons of high-grade ore per day. The Flagstaff Mine is being worked vigorously. Their shipments of ore will average from 50 to 100 tons of ore per day; this mine is situated west, and a little north of the Emma; they have a good tramway from the mine to the ore-house, and good buildings and fixtures generally. The Flagstaff Mine is situated in the same geological formation (lime) as the Emma, and I think it a mere "pocket"—a large one, no doubt. From present appearances I should say Flagstaff stock should go up; there is really no reason why it should be so low. Of the conditions of the Emma I could learn but little; this stock will undoubtedly go up soon—how high it is impossible to say, but I do not think it will ever reach par again. On Aug. 10 I left Alta City, and walked to Peruvian Hill and Bald Mountain to inspect the Far West company's mines, the Genevieve, Magnolia, Choctaw, and Della; all are looking well, and some of them will be valuable by-and-bye; we have done little or no work on them this summer. On my way to the Choctaw I crossed immense drifts of snow that the powerful August suns had failed as yet to melt. Quite close to the snow were large masses of lupins and other beautiful flowers; in fact, the mountain sides were covered with flowers in every direction; I have rarely seen a more beautiful sight.

I shall offer you an interest shortly in the Wachusett Company, and as the stock is unassessable you will have no liability. We do not put the stock on the English market because it would cost so much; one and another would have to be feed, and so long as we can find ready sale for it in America, where expenses are, comparatively speaking, small, it would be folly to seek a foreign market. The Wachusett Mining and Smelting Company has a capital of $2,000,000, in shares of $100 each, and has been incorporated under the laws of Utah for the purpose of legitimately and economically working and developing the Cedar Mine and Tunnel, in Little Cottonwood Canyon; its management is in the hands of successful business men, whose standing in commercial circles is a guarantee that the company's affairs will be honestly and economically administered.

I must write you full particulars of the Baldwin Exploring and Mining Company in a future letter. I have often thought I should like to give you a description of this rich and remarkable country, but my time is limited, and the subject is so vast that I dare not attempt it now. In the mountains of Utah are found gold, silver, lead, copper, tin, cinnabar, sulphur, gypsum, salt, iron, coal, &c. The iron and coal deposits are immense, and the sulphur mines are richer than any I ever heard of before. We have also very large deposits of copper and some really fine gold mines. Of our silver mines you have heard, but of our mountains of iron and salt, that glisten like icebergs in the sun, I presume you have heard nothing. We have them here, nevertheless. The iron mountain in Missouri is large, but we have them larger, and our coal fields are of the finest quality, and quite extensive, so that although British capitalists may have commenced by making a few rash bargains, they will be ready to acknowledge that the fact remains that Utah presents an enormous field for profitable commercial enterprise." W. B. T.

Plymouth, Sept. 30.

MINING ON FISSURE VEINS.

"Gold, gold, gold, gold!
Heavy to get, and hard to hold."—Tom Hood.

Sir,—Gold mining is a profitable business. There is no more commendable or Christian pursuit than the extraction of wealth from Mother Earth, rather than the pockets of our fellow-men. In mining wealth is created, in trade it is only exchanged.

Again, the growing business of the world demands gold. England (the greatest of financial countries) has a gold currency. Germany is now coining gold and not silver. The United States will soon resume, and this is evidenced by the payment of one thousand millions of her (paper) war debt since 1865, and the fall of her gold premium from 250 to 112 in nine years.

The great reservoir and vortex of silver is India, China, and the Orient; but the chief civilised and commercial nations demand and will have gold.

In 1848 the total gold in the world was 360,000,000*l.* In that year California's gold deposits were discovered. Gold mining became a leading industry in the western hemisphere, and in 20 years we have seen the amount of gold doubled from this source: 500,000,000*l.* have thus been added to the world's wealth, and the stock of gold is now 1060,000,000*l.*

California supplied the world with 100,000,000*l.* from her creeks, rivers, sands, hydraulics, and various sources of placer mining. Some four or five years after men had been successfully working the surface wealth that

"Flowed down her golden sands,"

the "Mother Lode was discovered; the original source and fountain of all the deposits scattered so profusely in her streams and valleys. This famous lode is so marvellous that the official report on mining transmitted to the Congress of the United States in 1868 describes it in the following language:—"The Mother Lode of California is the most remarkable fissure vein in the world." It runs northerly and southerly through the central counties of the State (as Amador, Nevada, &c.), in a line parallel with the Sierra Nevada Mountains, slightly elevated above the gold bearing placers, and fertilising them with its auriferous treasures. Between 200,000,000*l.* and 300,000,000*l.* of gold has thus been furnished to the world from this remarkable vein or lode. A Californian discovered gold in Australia in 1851, and it has added its wealth of gold to swell the sum total first herein named.

The only two fissure veins on the West Coast of America are the Comstock lode and the Mother lode; they are parallel with each other, 100 miles apart, the former on the eastern and the latter on the western foot hills of the Sierra Nevada Mountains. The Comstock lode was discovered by California miners in 1859. It has yielded since its discovery 30,100,000*l.*, and has divided in dividends to the shareholders in its different mining companies (Ophir, Gould and Curry, Crown Point, Belcher, &c.), 7,000,000*l.* These two great veins confirm the reiterated opinions of *savants*—viz., first fissure veins are practically inexhaustible, second fissure veins improve in ores in depth. Experience proves that mining in the West Coast of America is a growing and not a decaying industry.

The yield of the Comstock has been as follows:—In 1859, 160,000*l.*; 1860, 400,000*l.*; 1861, 1,200,000*l.*; 1862, 1,600,000*l.*; 1863, 2,000,000*l.*; 1864, 2,420,000*l.*, &c. In 1873 the yield for the quarter ending June 30 was 1,409,103*l.*, or at the rate of 5,636,412*l.* per annum.

The gold yield of California commenced in 1848. In 1850 it was 400,000*l.*; 1851, 1,400,000*l.*; 1852, 2,000,000*l.*; 1853, 3,000,000*l.*; 1854, 4,500,000*l.*; 1855, 5,100,000*l.*; 1856, 6,240,000*l.*; 1857, 7,400,000*l.*, &c.; and it is a notable fact that the gold yield of California in 1872 was greater than for any year since the discovery of gold in that wonderful State.

Thus, mining for the precious metals on the Pacific Coast of America, notwithstanding the ups and downs of individual companies, is a growing industry, progressing in its character, improving in its machinery, and augmenting year by year in its yield. There is no doubt that this industry is yet in its infancy, and that before the end of the nineteenth century its marvellous developments and advance will astonish the whole civilised world. Anglo-American.

AMERICAN MINING.

Sir,—I have perused with much interest the remarks and correspondence on American Mining in last week's Journal, especially the letter of Mr. Robert Knapp, in which I am glad to see verified, by his reference to "Englishman's" former letter, which I stated to be a fact some months ago—that up to the present time English companies had only purchased such mines as could at the best have but a short career, and have studiously avoided anything like fissure veins. When stating this to interested parties, I have often been met with the question—"Don't you suppose that mining engineers who have been brought up at Freiburg know as much about these matters as your American engineers?" From my own experience I say decidedly not, but that the opinion of one *practical* man on the subject is worth far more than the opinion of all the *theoretical* Freiburgers that have ever been sent out to our parts to examine mines, and who, as a rule, care far more for their own creature comforts—shooting, fishing, and so forth—than for the interests of the company or shareholders on whose behalf they are supposed to make a thorough investigation. This is one great reason why English companies have failed to pay; another reason is very ably pointed out in the article (p. 1059) on "The American Mining Market"—"the organisation of unscrupulous syndicates;" and another reason is that in all the English companies there are too many dependents, who all have, or expect to have, a little something before the shareholders are thought of.

Now, a word as to the formation of syndicates. It came to my knowledge a short time since that a gentleman holding a very eminent position on the Stock Exchange had just completed a syndicate for 5000 shares in a certain mining company shortly to be brought out, and intended sending out an engineer to make an examination of the property for the satisfaction *and at the expense* of the syndicatees, who are all men of position, and, I am sure, have formed the syndicate with the most honourable intentions. In the course of conversation I said—"Suppose, now, that your engineer reports the mine to be in every respect deficient, and cannot verify the reports you have already received, and upon which you have formed the syndicate, what will be the result?" "Oh," he replied, "we shall have to get out of it the best way we can, and bear the loss and expenses of the engineer ourselves." That, certainly, appears to me a pretty loose way of doing business, and very one-sided. Really, if English people are willing to rush blindly into a thing in this manner, no wonder that they sometimes get "let in." For some weeks I have been endeavouring to get a Syndicate formed for the purchase of a very valuable property in California, but, owing to the depressing and unsatisfactory state of the various American mines, have met with but small success, notwithstanding that my terms are far more satisfactory, and give the syndicatees room for escape. For obvious reasons I do not name the property, but these are, in brief, the terms of my proposed syndicate:—"The property to be sold at £—— on a full report made by a well-known mining engineer in California. The syndicatees to elect an engineer to examine the property at their expense; purchase-money payable on his confirmation of my engineer's report. On completion of the syndicate I deposit with a London banker a sufficient sum of money to cover the English expenses; in the event of his not fully confirming *every item* in my report the sale then to be void." Such a contract as that would give English companies a chance of obtaining really valuable and dividend-paying mines at a reasonable price, and without the intervention of brokers and financial agents, I shall be happy to give full information of this property, or to treat with a firm or company respecting same.

I am glad to see by an advertisement in last week's Journal that the shareholders of Flagstaff, Last Chance, and Tecoma are about to investigate the cause of the sudden collapse in these properties. I think they will find the mines are hardly so much in fault as the "workers," and if expenses are kept under they may yet be able to work up again to their former value. The Emma, I still maintain, is good, but it is certes a bad sign to see the Glasgow shareholders selling out. I have recent letters from a gentleman of the very highest position in mining matters on the Pacific Coast, to whom I wrote on the subject, and I now quote from his reply, received on Sept. 22—"I can only assure you that I know the cablegram you refer to (Aug. 12) is *bona fide*—you will have it confirmed by letter by this time. Attwood has struck a vein with such indications that I believe it will lead to a big discovery, not a pocket deposit." This was the case with the Comstock, the largest mine in the world, and at which they worked for months without getting anything more paying than "bed rock;" but its after results show the wisdom of trusting to "fissure veins." I think it only due to the shareholders of this and all other mines that the directors should furnish them with every item of information they may receive, instead of withholding it, as is now done at the Emma office, and which causes remarks, and accounts in some measure for the various reports that go flying about. Frederick Simmons.

Queen's-road, Peckham, Oct. 1.

THE AMERICAN MINING MARKET.

Sir,—I was quite gratified when reading last week your timely and appropriate remarks in regard to the nefarious method of bringing out American mining schemes on the English market. It is, unfortunately, too true that valuable mines, which could and should have paid out handsome dividends if purchased at reasonable figures and efficiently worked under honest management, have been entirely discredited and spoiled by the grasping and unscrupulous manner in which they have been offered to the investing public. I will not allude to the "Wild Cat" schemes, which have ceased to infest the English stock market since measures of protection, as advised by the *Mining Journal* and the leading press, have been taken to guard against their introduction. But I must say that the present system, as carried on by syndicates in the purchase of valuable mines, and in their unscrupulous way of floating the same with capital stocks representing in nearly every case ten times their real value, is quite as ruinous, if not still more so, than the floating of spurious and worthless mining concerns.

Being myself a practical mineowner, who has it at heart to maintain the reputation of the legitimate mining interests of California, where I reside, and which I regret to have left for the sake of negociating my property in England, I hope that your advice may be listened to by both *bona fide* miners and capitalists, so that the negociation of mines on this side of the Atlantic may become at some not very far distant day a respectable and lucrative business.

Under the present deplorable system of negociating and floating mines on the London market I concluded to withdraw my property from it, in order to develope it with my own resources until it may be possible to get hard cash, and not shares, in payment thereof. Such is the best and only line of conduct which I advise my fellow mineowners to follow.

So I thank you, Sir, for your kind *expose* under the heading of "American Mining Market" in last week's Journal, and I bid you farewell and also to your "Mining Bureau," and to the fogs of the English Exchange.

Oct. 2. A Practical Mineowner.

THE THARSIS SULPHUR AND COPPER COMPANY (LIMITED)

Sir,—In last week's Journal the following paragraph appears:—"An application for the quotation on the London Stock Exchange, of the shares of the Tharsis Sulphur and Copper Company (Limited) has been refused by the Committee." In order to remove any misapprehension which the above paragraph may occasion, I send you an extract of my official letter to the secretary of the London Stock Exchange, in reply to his application for the assent of the directors of the Tharsis Company to allow an official quotation of the company's shares on the London Stock Exchange. Jonathan Thomson, Sec.

West George-street, Glasgow, Oct. 2.

M. Slaughter, Esq., Secretary London Stock Exchange, London.

My Dear Sir,—I have submitted your application, and the correspondence which has followed thereon, to my board of directors at their meeting to day, and I am instructed to say in reply that, while the board feel flattered by the request to allow the shares of this company to be officially quoted on the London Stock Exchange, they do do not consider that the interests of the company require this to be hastened. From the origin of the company the board has endeavoured to preserve to its shares the character of an "Investment Stock." Having this in view, no prospectus was ever published, although a limited number were issued privately, and for several years the shares were not quoted or dealt in on any public market. It was only after several bodies of executors had come into existence that, influenced by the propriety of affording them an opportunity of realising for their respective trusts the value of their shares, as that was to be ascertained in a public market, the board allowed the shares to be officially quoted on the "Glasgow Stock Exchange List," and that is the only market to which this official permission has been granted. As a very small portion of the company's stock is held in England, my directors do not see, at present, that the interests of the company require an official quotation on the London market; and, with these views, they apprehend the application which has to be dealt with by your committee may have for its object speculative dealings in the stock, which my directors wish to discourage.

Glasgow, Sept. 17. Jonathan Thomson, Secretary

EBERHARDT AND AURORA MINING COMPANY.

Sir,—Your remarks in last week's Journal, complaining of the dearth of official information from Utah mines, applies equally to those in Nevada—at least, the Eberhardt and Aurora. The grievance against our late manager, Mr. Phillpotts, was that he did not keep the company posted up—in other words, those connected with the management at home knew much less than outside shareholders. But what can be said of Capt. Drake's administration? Is it, in this respect, any improvement? Unless, indeed, which rumour asserts to be the fact, that startling results are to be realised, are to attend the working of the New International Mill, and that rich ore has been, and is still, being "dumped" for that purpose. This is assigned as the explanation of the lessened assayed value of the ore recently treated at the Stanford Mill, it being that extracted from nearer the surface, while it is known that the Pearless Chamber ore has continued, and is still continuing, to increase in depth, and that its present prospects and indications are now more encouraging in point of productiveness and permanency than at any period since it was first discovered—the vein being more regular in yield and uniform in character, partaking of the leading characteristics of a true fissure. That this should prove to be the cases is not surprising, for remembering that some of the leading "scientists" stated that these "pockets" near the surface would be found to lead to veins in depth, and this disputed theory seems to be receiving substantial demonstration in Pearless Chamber. So that it is not unlikely that the long-talked-of "White Pine pockets" may have been only the finger posts to other and more durable sources of wealth. But what I wish to draw the attention of my co-shareholders more particularly to is the absence of official information during this important juncture in the history of our chequered enterprise.—*Oct. 1.* A Shareholder.

RICHMOND CONSOLIDATED SILVER MINING COMPANY.

Sir,—The utter collapse that has taken place in all American mines naturally stimulates enquiry as to the actual financial position of this enterprise, and when one begins to enquire an analogous condition of things to those of Flagstaff, Last Chance, and Emma surround Richmond. Large and actually measured reserves are dazzled before the eyes of shareholders, monthly and increasing dividends are declared, furnace power is increased, and producing capacity augmented. Does all this portend another crash? The same vague statements were made about Flagstaff, Last Chance, and Emma—returns were made, dividends declared, but no accounts submitted. History is repeating itself in Richmond—at least up till now the same feature have presented themselves, and it is to be hoped that the same ignoble

position does not await the Richmond. Why do not our directors or our manager enable the information, the costs per week, as well as the gross return? It may be that the larger the return the smaller the profit, and that these large cabled profits are illusory, misleading, and like others preceding them—a snare. I am not saying that such is the case, but *experientia nocet experientia docet*. The whole haze can be so easily cleared away by the adoption of the very simple cause I have suggested—publishing the approximate cost against the gross weekly returns.

Sept. 29. A SHAREHOLDER.

EMMA MINE.

SIR,—I have just received the last circular from the directors and committee of investigation. I am disposed to place as much reliance on this circular as I did on the previous one of Aug. 12, as to the prospects of enough ore being found to ever pay dividends again. It will be remembered that in reference to this previous circular, hopes were confidently held out to the shareholders that "another chamber of ore was near at hand." I predicted what the result would be—vexation and disappointment. It is not impossible, of course (though highly improbable), that another large chamber of ore should be found: but admitting there is, and that it produces net 100,000*l*., just double what the company have produced from the mine since Nov., 1871—even with this sanguine anticipation, after paying Mr. Park's debt, and the Illinois Tunnel Claim, the value of the shares would be barely more than 1*l*. each. I again repeat, as I did in the Postcript to my Pamphlet, I decline to place any reliance on the statements issued by a board composed, as the present one is, of four-fifths original Emma directors. I decline to be any party to any proceedings they may take with reference to the mine.

I claim back my money from those who are responsible for the fraudulent statements in the prospectus, upon which I took my shares, and I propose appealing to a jury of my countrymen as soon as I can get a sufficient number of other shareholders to support me.—*Tinsley Hill, Wandsworth, Oct.* 2. S. T. PAFFARD.

MINING ECONOMICS.

SIR,—I think if ever there was a time when practical skill of that class which partakes both of science and experience was required in mining it is the present time. The day is certainly gone by when dogged ignorance can maintain an assumed position against the light of reason, and command the respect and approbation of intelligent men, if the position assumed is not fortified by the necessary qualifications. I shall assume that if mining is not a science astronomy is not; but it is one of a very different kind. It is the science of properly applying many other sciences. In addition to which it has a science of its own, a difficult and intricate branch of natural philosophy which largely obtains, both in its speculative and practical ramifications. The proposition heading this letter is one of paramount importance as affecting its results, and which too many entrusted with its practical affairs know not how to promote.

Mining is a complex pursuit, encumbered by many expansive details, and comprises many avenues tending in opposite directions. Those which pertain to the conservation and success of the different ramifications of this great and most important industry are limited in the first place by nature itself, and in the second place by accidental or arbitrary circumstances, whilst those which relate to the outgoing are subject entirely to the action of individuals who are, in too many instances, capricious and impulsive. Men who are utterly incapable of adding a single idea by induction to their remarkably small stock of knowledge, and who, therefore, fail to perceive the approach of coming events by the shadows which they usually cast before them, and hence they are too frequently overtaken and surprised by some casualty, conveniently referred to the chapter of accidents, but which with ordinary vigilance never would have occurred. Things would always have been better with such men's undertakings if it had not been for this or that unfortunate occurrence, which occurrence they never seem to consider was just what it was their duty to have prevented. I am constrained to address you on this subject from facts which have come under my observation since I have been in this part of the country. I thought the day was passed when unblushing and unmitigated ignorance could stalk abroad, and be tolerated, from no higher consideration than gratuitous self-assertion, which gives vent to its heavy mental accumulations in some such sage expressions as the following:—"I think," "So and so," "My opinion," is "So and so," &c. But if one should ask them upon what their thought is exercised, or their much-vaunted opinion is founded, there is a unanimous silence, until the reverberations of space echoe—"Upon what?" It is commonly the case that that class of men who have not the knowledge or genius to discover the necessities of their own office, or business generally, betray a very great anxiety concerning the business of others. I should not have considered it worth while to address you on this subject, however annoying it might have been to a community to be infested by persons of such proclivities, if mining were not so palpably prejudiced by their incapacity and misconduct. To the inexperienced it is very difficult, if not impossible, to realise how much is lost in mining from inattention on the part of the agents, whether through sheer incompetency or culpable negligence, and it is to be regretted that the difficulties which beset mining are not more generally apprehended, and those essential qualifications to prosecute it successfully properly appreciated.

In the incipient stages of really progressive mines the greatest anxiety is usually experienced by those having the interests of their employers at heart, and who are prompted in their exercise of due vigilance by the felt responsibilities of their office, and no diminution of such anxieties ever takes place with such persons, except in proportion as one problem after another is solved relating to the phenomena of lodes, cross-courses, elvan and other dykes, as well as the prevailing, constitution of the containing rocks which are comprised in the sectional area, ideally or otherwise, outlined in the plan of development, and this because the really qualified director of the operations is vividly impressed with the fact that something may turn up at any time during the prosecution of exploratory operations to necessitate an entire change, or very important modifications, in some parts of the pre-arranged plan of working. The master of a small ship afloat deems vigilance as much a necessity to his safety and success as the commanders of the Great Eastern or of the Devastation do, and this should equally be the case in regard to mining; but, unfortunately, in regard to the latter, the small craft of some seem to be always in port or riding at anchor elsewhere. It seems not to be included within the pale of some men's calculations to make progress. I suppose that must be because their position, in whatever occupation, has always been in the rear, and they feel themselves a sort of drag upon the wheels of progress, and the nearest they have ever approached to positive good is when they do no harm.

I was regaled some little time since by a London company's agent here reciting his exploits on mining, and he seemed to be as happy and triumphant under the influence of self-gratification and complacency as if he had succeeded in squaring the circle. I was struck with the strangeness of the episode during its recital that no mention was made of any useful work having been done meanwhile, but simply that the operations of the mine had been carried on with only so much loss to the company. I was also struck with the peculiarity of genius displayed on that occasion by his taking credit for all the ores broken on the mine, without taking into consideration the cost of working during that period. The singularity of the whole proceeding induced me as a matter of curiosity to examine the published official reports in the *Mining Journal*, and, to my no very great surprise, I found that from week to week, and from month to month, not a single exploratory point had been prosecuted in the mine, but that a positive loss had accured from extracting the reserves, wearing out the machinery, and otherwise impoverishing the company. It is to cases like this that a great deal of the ill success which accompanies mining is to be referred. A succession of setting up and taking down again, whether with reference to mechanical appliances or to idealisations of the fancy, objects created and set at a distance from the observer, in order that enchantment may accompany the view, which objects are decorated with a garb speciously adjusted in imitation of some tangible reality elaborated and successfully operated by someone else under assumed similar conditions. This is what may be termed phantasmagorial mining, a succession of changing scenes with lights and shades artificially alternating, a peculiar kind of mining suitable only to a very peculiar kind of individuals; it is a sort of concretionary agglomeration of heterogeneous compounds, confusedly uncompounded in the mass, and recklessly uncombined through the action of uncongenial affinites opposing each other. There is a limit beyond which some men cannot go; their outlook is bounded by a few trite objects of sense, whilst the light of their experience and intelligence is too feeble and insufficient to enlarge their mental horizon, which, added to their natural obtuseness, shuts them up in a region of comparative darkness, and renders the world of light and intelligence around them a *terra incognito*.

The contract system—tutwork and tribute—of Cornwall has made the working miners of that county the most able and efficient throughout the world; then what can be said of a Cornishman acting in the capacity of an agent working the mine he is in charge of exclusively on day work, without any special reason for it whatever, and who does not think it necessary to give more of his time in looking after the mine than if they had been engaged on contract? There is an end to progress, according to the true acceptation of that term, when the system of day work is exclusively adopted in mining, except under very exceptional circumstances, and when the agents of such mines are found loafing about town, prying into other people's business, instead of attending to their own, it is not much to be wondered at if losses accrue to their companies whilst even engaged in doing nothing more than picking out the eyes of the mines. In my estimation a loafing mining captain is a scurrilous excrescence upon the fraternity, as well as a blot upon the social escutcheon of any civilised community. ROBERT KNAPP.

Llanrwst, North Wales, Sept. 29.

MINING IN NORTH WALES, AND ITS PROSPECTS.

SIR,—A writer in the Supplement to last week's Journal, who signed himself "Cymro," set out with the usual expansiveness of those who feel that they would do something if they could. Ostensibly his purpose was to offer some remarks on my letter which appeared under the above heading, in the Supplement to the Journal of Aug. 16. He suddenly subsides, however, and consoles himself by asking me to inform the public upon what authority I made the statements he referred to. If "Cymro" were desirous of obtaining that information for himself he should have been candid enough to say so; and if he has devoted 37 years to the study of the geology of this district, and is not ashamed of the proficiency he has made, he ought not to be averse to sign his name to such a request. I might ask him who the public is on whose behalf he writes, and how many of such individuals would, in his estimation, be sufficient to justify him in adopting that generic term? I am very well aware that my remarks on "Mining in North Wales, and its Prospects" were very unpalatable to a certain individual or *two* in the locality from whence he writes. But if that little clique, or any of its sympathisers, are disposed to discuss any of those statements which have disturbed their equilibrium, whether with respect to facts of geology or practical mining, they need only to take exceptions through the proper channel, with their names attached. I do not consider that I am under any obligation to answer questions clandestinely propounded in the name of the general public, but which I have reason to know were prompted by sinister motives, and for party purposes. If "Cymro," however, is interested in knowing on whose authority I made the statements referred to, he may obtain that information by making his request through the medium of the Journal, with his name attached, after which I shall consider myself entitled to put a few questions to him, which I shall expect him to answer with equal candour.

Llanrwst, Sept. 29. ROBERT KNAPP.

CREBOR AND CROWNDALE.

SIR,—It is, under any circumstances, matter for regret that when people try to bring out new mines they should introduce subjects calculated to injure their neighbour's property. If what they say be true it does them no good in the end, and if false, like what I am about to call attention to, it must soon recoil upon their own heads.

The promoters of what is called "Crowndale Consols" state, in their prospectus, that the recent drivings in Wheal Crebor, valued at 120*l*. per fathom, are only a few fathoms from the Crowndale, which implies, if it means anything, that the end is near the Crebor boundary, and, therefore, near to the property advertised. But, Sir, the property advertised as "Crowndale Consols" consists of East Crowndale, Rix Hill, and Anderton, all well-known names to the old readers of the Journal, and are on the lands of the Earl of Devon and Mr. Wilcocks. The old Crowndale, which is on the Duke of Bedford's land, occupies the space, for more than 500 fathoms in length east and west *between* Wheal Crebor and this "Crowndale Consols!" The "few fathoms" of the prospectus, therefore, constitute at least half a mile.

There can be no doubt that the old Crowndale sett was formerly very rich, and that the lode now so rich in Crebor is the veritable Crowndale lode; the 120 end east however, is still 100 fathoms from the present boundary, and a great extension of ground east in Crowndale has been allotted to Wheal Crebor. ARGUS.

CROWNDALE CONSOLS, AND WHEAL CREBOR.

SIR,—My attention has been drawn by several of the Wheal Crebor shareholders to an advertisement that appeared in your valuable Journal of Sept. 27, respecting the Crowndale Consols Tin and Copper Mine. It would appear from the advertisement that the Crowndale Consols was within a few fathoms of Wheal Crebor, and that the ore in the 120 fathom level end east would soon be driven through and enter Crowndale Consols. For the guidance of the Wheal Crebor shareholders, I beg to state that the 120 fm. level end is a great distance from Crebor boundary, and that between Crowndale Consols and Wheal Crebor lies the Old (or West) Crowndale.

Wheal Crebor Mine, Tavistock, Oct. 2. JOHN GOLDSWORTHY.

CROWNDALE CONSOLS TIN AND COPPER MINING COMPANY.

SIR,—Under the above heading I read in last week's *Mining Journal* (advertising column) the following statement in reference to the Wheal Crebor lode:—

"The recent drivings in the Wheal Crebor (only a few fathoms from the Crowndale) have been valued at 120*l*. per fathom."

Again, in a report signed R. Waters, it is stated:—

"In the Crebor, the next on the west, a new vein of ore has been cut, dipping east towards Crowndale."

The first assertion implies that the late discovery in Crebor is within a few fathoms of Crowndale, and, consequently would soon be in the Crowndale ground. This is altogether without foundation, and I must disabuse the minds of our shareholders and the public of that impression by stating the fact that the lode now in the end of our 120 is about 100 fms. short of the boundary of the sett east towards Old Crowndale.

The old Crowndale is not the East Crowndale of Crowndale Consols Tin and Copper Mine, and is 530 fms. in length between the present eastern boundary of Crebor and the western boundary of Crowndale Consols, thereby clearly demonstrating that the western boundary of the Crowndale Consols is distant from the 120 end, in Crebor, nearly ¼ mile, and half the river Tavy in addition. The statement, therefore, of Mr. R. Waters, mining surveyor, that "Crebor is next on the west" is as absurd as it is erroneous. The entire length of Old Crowndale sett, the property of His Grace the Duke of Bedford, is between the two.

JEHU HITCHINS,
Secretary to the Wheal Crebor Mining Company.

St. Michael's House, Cornhill, Oct. 2.

THE RED RIVER.

SIR,—I have no connection with the operations on the Red River, consequently cannot be affected by the aspersions thrown out by sundry *Mining Journal* correspondents against those who are interested in the works thereon. Whether it is through ignorance or malice that those persons have aspersed the "squatters" (so called) I know not; but this I know—the persons so writing are either ignorant or wicked. They must be ignorant if they suppose that any agents having stream-works a mile down the river from Dolcoath would, if they could, send down tin belonging to Dolcoath, Cook's Kitchen, or any mine above; because the "squatters" immediately below would have the advantage of any such robbery, and not, except in an unappreciable degree, those who are a mile down. Why, Dolcoath Company have so many contrivances for retaining the tin passing from their stamping mills, and from the mines above, that if it were possible to retain the whole they would do it; but they cannot, owing to the fineness of the tin or slime so coming down. Since they increased their dressing-floors, frames, &c., they have lessened the amount of tin carried down by the stream, but cannot retain it all.

There are about ten "squatters" down the stream, and, although everyone takes all he can out of the sand and slime, all the others do the same, and everyone finds enough to pay. I do not for a moment suppose that any agent connected with the stream could be guilty of the folly or dishonesty of sending tin from any mine down its course. The absurdity of any such attempt has been already exposed.

I attribute to malice the insinuations contained in some letters lately inserted in the Journal, attempting to injure the reputation of the honest men engaged in the Red River works. They only intercept the tin in its passage to the sea, and thereby save what would otherwise be lost to the country.—*Oct.* 1. R. SYMONS.

SOUTH PRINCE PATRICK.

SIR,—Having known the district in which the South Prince Patrick Mine is situated for more than 25 years, and having recently been called on to report on some mines in that district, it affords me much pleasure to be able to bear testimony to the genuineness of the mine. It is situate in the best district of Flintshire, and, from the present indications, I believe cannot fail to turn out very large quantities of lead ore at a very small cost, and will soon enter the Dividend List; indeed, I see no reason to believe otherwise than that South Prince Patrick will equal any mine in the district for richness, durability, and productiveness, and I consider the directors are acting wisely in issuing only a certain number of their shares at present, feeling confident that the amount so disposed of will be ample for their requirements, and that the remaining shares will go at a premium of cent. per cent., or, perhaps, a great deal more.

I would say to those who have taken an interest—Hold fast, and then you cannot fail to make a good thing out of it.

Goginan, Aberystwith, Sept. 30. ABSALOM FRANCIS.

NANT-Y-RICKET COPPER AND LEAD MINING COMPANY.

SIR,—The communication of your correspondent, Mr. R. H. Porter, in reference to this company, seems to require attention. When his first letter appeared I had a feeling of regret that anyone should unsuccessfully, be endeavouring to gain any information relative to the working of the mine, and in my reply to that letter I stated that if the writer would call at my offices here I would be happy to supply him with any information he might desire. After this I must say I was quite unprepared for the extraordinary communication which appears in the Journal of Saturday last. Mr. R. H. Porter, "for reasons" (which he does not state) declines to institute his enquiries in the proper quarter—the offices of the company. What Mr. R. H. Porter's "reasons" may be I am at a loss to conjecture, but possibly his reluctance to call here may be ascribed to the fact that he does not hold a single share in the company. Considering this fact, it appears to me very strange that Mr. Porter should take such a deep interest in the Nant-y-Ricket Mine. That a perfect stranger should first write to a public journal respecting a company in which he is not a shareholder, that he should decline the courteous invitation of the company's responsible servant to call and receive what information he required, and that he should coolly insist that his interrogatories be answered in print, seems to me a piece of the most sublime impertinence. There is not a shareholder in the company in the least dissatisfied with the progress we are making, or with the appearance of the mine. Sir Watkin Wynn's mineral agent expresses his satisfaction at the energetic way in which we are now conducting our operations. When Mr. R. H. Porter acquires the *right* to question me respecting the affairs of the company he will find me most willing to answer his enquiries. In the meantime I shall decline to take further notice of his or any similar communications, as they are not made in good faith, but in a spirit of meddling interference. There was a Hibernian doctor once who made a large fortune—by minding his own business.

16, *Finsbury-pavement, Oct.* 2. D. CAMERON PARR.

NANT-Y-RICKET MINE.

SIR,—My attention having been called to Mr. Porter's letters, which have appeared in the Journal, and in which he seems to appeal to me for information respecting the state of affairs at the above mine, I beg to inform that gentleman, in reply to his enquiries, that the present Limited Company has as yet barely had twelve months existence on the two copper lodes, the adit levels which Mr. Porter saw going into the side from the River Severn are being pushed on at the present time with all reasonable speed; four men have been employed in driving each, with, I understand, very good lode of copper in the adit, on No. 1 lode; while in the level on the No. 2 lode the copper is evidently dying out, and a strong mixture of fine silver lead is taking its place as they approach more into the strength of the hill. And this is probably, neither of these lodes are quite as rich for mineral as they happened to be just at the time when Mr. Porter visited the mine, in 1869, I can have no manner of doubt but when they shall have been driven sufficiently into the hill, and out of partially out, of the influence of the Trappean rock (in which both the lodes are now embedded), and shall have entered more into the clay slate, that an abundance of lead ore-bearing ground will be opened up, but it must not be forgotten that after all, one of the grandest features at Nant-y-Ricket is the beneficial influence these Trappean rocks must necessarily have eventually in making these lodes mineral bearing. And, although I am not aware that there are any shares in the market at present to be obtained, I can honestly recommend Mr. Porter and his friends, if they meet with any, to purchase every one they can get at a fair and reasonable price. Nothing yet has been done upon the north and south lead referred to by Mr. Porter, although I believe this will one day prove to be a rich lode for lead ore; but I may mention that the adit level now being done on the No. 2 copper lode will eventually intersect the north and south lode, when very good things may fairly be expected, and this will be a most interesting point to watch.

Undoubtedly some difficulty has been experienced at Nant-y-Ricket during the last twelve months in obtaining the necessary amount of labour (or present the work with that rapidity which might have been desired; but I believe that as soon as the company's arrangements for obviating that difficulty in the future shall be completed matters will very soon assume a different aspect at Nant-y-Ricket. And it may be of importance to Mr. Porter and his friends to know (as that gentleman appears to be anxious to know everything about Nant-y-Ricket) that the management of the mine has fallen, though only very recently, into the hands of a gentleman in whose probity and mining abilities I can, in so far as I am individually concerned, repose the most implicit confidence. In reference to the financial position of the company, I think I should advise Mr. Porter and his friends, notwithstanding any reasons he may have to the contrary, to call upon Mr. Park (the secretary), at the company's offices, from whom, I have no doubt, he will receive the necessary and desired information upon that head, and I hope it may prove amply satisfactory to him. DAVID PRICE.

Cefn Hirfod and South Dyliffe Mines, Oct. 2.

RHOSWYDDOL DRESSING FLOORS.

SIR,—I had no intention of saying one word on this subject, much less writing so much, had I not been compelled to do so by the assertions of "Pedestrian." I have never misconstrued his statements either one way or the other, but simply took them as I found them. Then, Mr. Editor, can you suppose that all who have written in evidence of "Pedestrian's" random effusions (he has at last given them a right name) are my subordinates? This is ridiculous, as can well be imagined. All who have thought fit to reply to "Pedestrian" have done so on their own responsibility and quite independently of me.

A part of his first section of his last effusion which begins with a lavish use of gaudy colours seems to have been written under great excitement, and is utterly unintelligible. I, therefore, say nothing about it. The next sentence about his dispelling impressions, with his terrible scorn, deserves a passing notice (for his own benefit)—that his scorn, to however high a pitch he may work it will, not dispel impressions any more than his random sayings. I did express a desire that he should go back to the starting point, and there I will have him go, notwithstanding his display of words and evasion of the true interpretation of his statements, whether a mine (as he says) employing on an average 40 miners, and producing 40 tons of ore per month, comes within the precincts of being rich I leave to a discriminating mining public to decide. How wonderfully generous and profound logical, to be sure! I also leave it to the same public to decide how a mine which ever quantities of ore it may have produced) which came to grief after an expenditure of £30,000 can be called a rich mine? If a discriminating public do so decide "Pedestrian," I am sure, is preparing to put them into one or two rich things. The sage remark, however, cuts both ways. If 40 miners produced 40 to 50 tons of ore (say 45 tons) will "Pedestrian" say what became of the balance of the money proceeds? because a discriminating public will at once perceive that 40 miners at 2*l*. per man will not absorb 45 tons at 12*l*. Then comes the comparison and miserable attempt to explain how he accounts for his saying the mine is getting into the shade, and to do so endeavours to connect the once productiveness of the mine with the present state, when the real fact is that an interval of scarcely less than 15 years had elapsed between the two periods. Let it here be explained that notwithstanding the richness of the mine and the largeness of the expenditure, the former shareholders allowed the mine with all its drifts, sumps, "dead" and "prospectory" work to be sold for 700*l*. "Pedestrian" never whispers a word about this, and if we omit one tolerable "pitch" worked by a pare of tributers, this was the state in which the mine passed into our hands. I think I am equally safe in asking a discerning public whether a concern having expended some 30,000*l*., and selling at 700*l*., and having realised substantially no profits, is what may not only be termed "getting into the shade," but into utter darkness. Also, as to whether this now celebrated public instructor is not, by the concealment of these facts and the attempt to impress the idea that the two periods (*i.e.*, the former productiveness and present "poverty") is a continuance of our working, throwing dust into the eyes of the public? The fact undeniable is that many years intervened between the former company's abandoning the mine and the present taking it up. That I strongly advise "Pedestrian" to put himself right before attempting instructing others. I have looked carefully over his letters for the few brief facts, but fail to discover them. His assumption that I admit anything he has said bearing on the subject at issue is as unfounded as all else he has advanced, and if no benefit has arisen to "Pedestrian" himself from the publication of his effusions, I can assure him that quite the contrary has been the result to me, which a discriminating mining public are testifying in a most substantial and gratifying way, and, therefore, I do hope that "Pedestrian" will not leave off. It would suit me to pay him something to continue, rather than he should just now display the white feather. Particulars of the "great boon" so much catered for are being prepared, but, alas for poor "Pedestrian!" it will be like Haman's gallows for Mordecai: it will be the very tree on which himself will hang, and then what will the old tune be?

But one of the most serious imputations of all on which the reader is invited to decide is made with his now established mode of putting a question—in the wrong way. A company was formed to work the Rhoswyddol: 4000*l*. was provided for the construction department, which was urgently needed, independently of any patents; 4000*l*. was also provided for opening the mine, said to be ample—the sum provided for the construction (not of floors only, be it understood) paid for it. The 4000*l*. for opening the mine was spent, and 10,000*l*. besides. Reader decide who-

ther this man is throwing dust in your eyes or not. The mine has in no way suffered from the construction department, nor has it been neglected, as the sum expended will show. "Cymro" was, however, right in saying the mine was saved by the machinery, as without it there was really nothing to show for the money spent, and one-third of the ore dressed would have been better cast into the waste heap than attempt to deal with it with things as they were. It was in hopes that the mine would turn out something equal to the machinery that it has been kept on at all by the present holders; and now that, by our constant perseverance to develope the mine, we have a fair prospect of success (for without a mine machinery would, of course, be useless), contrary so to the predictions of a certain clique that has caused all the animus so prominent in "Pedestrian's" effusions, for the present I will conclude by an extract from a letter just received from another mine which has been saved by my machinery, and where it succeeds even better than I represented. These testimonials are multiplying. I do hope "Pedestrian" will continue to bring grist to the mill.

Middleton-in-Teesdale, by Darlington, Sept. 27, 1873.

"I see by the *Mining Journal* you are being attacked: and, as you say, 'Pedestrian' cannot know anything practically of your machines, or he would not write so ignorantly. After a full season's experience of this very complete machinery erected by you at our Coldbery mines, we are fully satisfied with our decision to adopt your patent machines. The machinery does its work as well as we can desire, and better even than we had anticipated, and as we become more conversant with the working and management of the machinery it improves in quantities got through, and the perfect manner in which this is done. We are now getting through 70 tons of orestuff per day, of rich quality, and we are quite convinced that the jigging-machines would do much more.

We start the Nanthead machines the first week in October, and we anticipate the same good results there which we have found at Coldberry, and I do not hesitate to say that we will put up more at our other mines, where the 'old system,' if system it can be called when compared with yours, shows a marked contrast to our Coldberry floors. You shall have a carefully-worded testimonial from us, and we shall be very glad for you to make use thereof, or of our names as references. We have not as yet had the accurate year's cost, but when we do so we do not doubt that the saving in cost over the old system will show fully one-half on old wages, and vastly more on the wages we now have to give; in fact, without your machinery we should have been at a standstill, for we cannot get hands enough to supply all our wants elsewhere; and more machinery of a self-acting character, reducing labour to a minimum, is a necessity. In the present state of the labour market, over and above saving in cost is the saving in ore, which is not much short of 10 per cent. After we get to work at Nanthead I will report to you.

C. E. BAINBRIDGE.

P.S.—You can quote from this if you think proper, and use it as you like.

I must now leave "Pedestrian" to his own reflections, which I doubt not are anything but agreeable. GEORGE GREEN.

Aberystwith, Sept. 29.

EAST WHEAL LOVELL, AND ITS MANAGEMENT.

SIR,—You have lately published some letters upon the management of East Lovell. As a shareholder I beg to state that I fully agree in the opinion that we are kept in the dark as to the accounts. If this mine, with lodes worth 300*l.* per fathom, according to weekly report, and only 1906 shares, cannot pay dividends, what chance has any tin mine in Cornwall of success? I am a shareholder in Polgooth, Cafartha, Kitty (Uny Lelant), Great Royalton, and Roche Consols, so I am of opinion—1. That a clear balance-sheet ought to accompany every report of meetings.—2. That the balance-sheet should be audited by a professional firm of auditors chosen by the shareholders.—3. That the mine meetings ought, in fairness, to be held alternately at the mine and in London. HALF-PAY CAPTAIN.

POLBREEN MINING COMPANY.

SIR,—I am glad to see that a fellow shareholder has taken up the cudgels against the executive, and called upon Captain Nancarrow for an explanation of the inconsistent position he occupies as a co-promoter, a member of the interim committee that appointed our present Chairman, who (upon the principle that "one good turn deserves another") appointed Capt. Nancarrow manager. I am not interested in any of the other companies with which Capt. Nancarrow is associated, and, therefore, have no right to pass any opinion upon the vital point raised by your correspondent in last week's Journal; but, upon principle, I cannot but endorse all that he has written. Captain Nancarrow, in self-vindication, is bound to reply to the serious allegations put forth, otherwise the shareholders can come to but one conclusion.—*Sept. 30.* ANOTHER SHAREHOLDER.

WHEAL VINCENT TIN MINE (ALTARNUN).

SIR,—Having been a shareholder in this mine almost from the first start of the company, I beg to state that the present condition of the mine itself does not induce me to show the "white feather." On my first visit to the mine I saw splendid stones of tin—a fine lode in Nicolls's shaft, and everything looked very promising for a lasting and profitable mine. I have watched its progress ever since, and find that suitable machinery has been erected; the whole plant at the surface has been put in position in a very compact, workable, and efficient manner, reflecting great credit on those who have had the superintendence thereof. I have also been underground, and there I can see nothing to condemn; trip plats are cut at each level, tram road laid, levels driven, stulls put in, and the stopes are worked in a miner-like way. I have also conversed with intelligent miners and practical mine managers who stand high in the estimation of the mining public, and who have inspected the mine, and they form one opinion of the management—That there is nothing to complain of, but that the notion of mismanagement exists only in the imagination of a few persons, who dare not profess to have sufficient practical knowledge of mining to be able to suggest the best method of working Wheal Vincent; and allow me to add, or any other mine. Although the mine is not at present yielding so much tin as could be desired, yet I maintain, in justice to the agents, that they are not to blame in the matter—they have manifested a great deal of interest, energy, and skill, are thoroughly efficient practical miners, and "know tin" where it can be seen, but cannot see it where it is not. Having sold from the mine nearly 50 tons of tin, realising about 3500*l.* in one year, is not a little thing, and I much question if any other young mine in the county can boast of such results in so short a time. I have this week learnt from the agents that the lode at the 30 west is 4 ft. wide, a strong masterly lode, producing some very good stones of tin, and likely to improve. I would say to my fellow-shareholders Cheer up; the Sun may be under a cloud, but it is in the firmament and will again shine forth. ANOTHER SHAREHOLDER.

WHEAL VINCENT, AND ITS MANAGEMENT.

SIR,—On looking over your valuable Journal of Sept. 27, I saw a letter strongly condemning the management of this mine, signed by one describing himself a "Shareholder." Now Sir, as I object to paper wars, I shall not comment on his remarks, but give him a kindly invitation to appoint any day in the next fortnight (Saturdays excepted), and meet me on the mine, and to bring another practical miner with him. One thing is indispensable (to quote his own words), he should know tin. Then I would patiently wait while they describe the different points of mismanagement, and hope to be benefited thereby. The old adage holds good—"A man is never too old to learn." Now, Sir, if the writer does not accept the above invitation I shall continue to think, as before, that he is no miner, but a very dangerous man.—*Redmoor, Callington, Oct. 2.* JOHN GIFFORD.

DEPRESSION IN MINING SHARES.

SIR,—I have during the past few weeks been looking over the price lists of mining shares, and notice with astonishment the extraordinary depreciation at present existing. Surely if the investing public desire to make large profits now is their time, by purchasing into some sterling thing, well managed. Undoubtedly confidence is shaken by the failures in American Mines, and to this is greatly due the fall in home ventures. A few hundreds in the following would in all probability be well laid out:—Dolcoath, Crebor, Pennerley, Tankerville, Gawton, Gorsedd and Celyn Level, East Lovell, Great Vor, Rosewall Hill, Wheal Kitty, South Tolcarne, New Dolcoath, Denbighshire Consols, and many others. SHAREHOLDER.

[For remainder of Original Correspondence, see to-day's Journal.]

CORNISH MINE SHARE MARKET.—The market has continued quiet, and, if possible, less business has been transacted during the past week. In consequence of the Banca sale not having gone off so well as could be wished, a drop in the Cornish tin standards was generally expected, and, therefore, very few shares have changed hands, and these were confined principally to Dolcoaths, which have gone back from 51, 53 to 48, 49. As was anticipated, the standards were reduced 2*s.* per cwt. on Tuesday, and this has been followed by a general downward tendency in tin mine shares, in many of which, however, no business has been done, and the prices should, therefore, be considered nominal. The American monetary difficulty and the rise in the Bank rate of discount have, no doubt, tended also to check business. We have heard of no falling off in any of the mines, and it is pleasant turning from the very dull tone of the share market (which we trust will soon improve) to notice that in these times of depression *one* mine has even entered and continued in the dividend-paying list. It must be gratifying to Wheal Seton adventurers and to Capt. Teague (to whose able management the improved state of things is attributable) that they were not compelled to stop short after paying one dividend, as some people anticipated. At the meeting, on Monday, 10*s.* per share was declared, this being the second dividend since Capt. Teague took the management a few months since, previous to which time heavy calls were made. We hear that the reduction in the dividend is caused by certain improvements which have been made in the dressing-floors, and to the lower price of tin. The report was a very fair one, and yet in the face of this some persons in the market persist in asserting that Wheal Seton is a poor mine, but we think that if such parties had the pleasure of handling the dividends in hard cash, they would be a little more inclined to think that "facts are stubborn things."

The following are the closing prices:—Carn Brea shares have declined from 95, 100, to 90, 95, and very few shares have changed. Cook's Kitchen quiet, 16 to 17. Dolcoaths, 47½ to 48½, and a tolerably large business has been done, although the market for shares at present is somewhat unsteady; the meeting is to be held on Oct. 12, and although we have seen 10*s.* freely offered for the dividend we have not heard that any have been sold at that rate. East Pool, 8 to 8½. East Basset, 13½ to 14½, nominal. Rosewall Hill quiet, at 10*s.* to 12*s.* 6*d.* South Carn Brea, 3⅛ to 3⅝; scarcely anything doing. South Condurrow, 5¾ to 6; we hear that there has been a good sale of tin here during the week. South Crofty, 25 to 27; no business transacted. South Frances shares have been in better demand, at 7½ to 8½. A few Tincrofts have changed hands at 45½ to 46. Unity Wood, 18*s.* to 20*s.* West Basset, 7½ to 8. West Chiverton called 4½ to 5, but no business doing in the Cornish market. West Frances, 8 to 9. West Great Work, 7*s.* to 9*s.* West Seton, 40 to 42; quiet. West Tolgus, 33 to 34. Wheal Kitty (St. Agnes), 11½ to 12. Wheal Jane, 2½ to 2¾. Wheal Seton, 31 to 33. Wheal Uny, 2¾ to 3.—*West Briton.*

Meetings of Public Companies.

THOMAS W. BOOKER AND CO. (LIMITED).

The annual general meeting of the shareholders of Thomas W. Booker and Co. (Limited) was held at the offices, 90, Cannon-street. on Tuesday. The report and accounts, which were adopted by the shareholders, showed a net profit of 32,605*l.* 2*s.* This, after writing off 10,000*l.* from the value of the stocks on hand, enabled the directors to declare a dividend of 7½ per cent. for the year ending June 30, 1873, carrying forward a small balance.

The CHAIRMAN congratulated the shareholders on the satisfactory working during the time the directors had been in office, and after re-electing Mr. Dever (of the firm of Deloite, Dever, and Co.) auditor of the company, and passing a vote of thanks to the chairman and directors for their able management of the affairs of the company, the meeting was brought to a close.

SIERRA BUTTES GOLD MINING COMPANY.

The seventh ordinary general meeting of shareholders was held at the City Terminus Hotel, on Thursday,—

Mr. LEWIS R. PRICE in the chair.

Mr. JOHN SAUL (the secretary) read the notice convening the meeting.

The report of the directors stated that the accounts showed a balance of profit available for dividend of 19,709*l.* 7*s.* 9*d.* Out of this amount an interim dividend of 2*s.* per share, free of income tax, was paid on July 10, and the directors now recommend that a further dividend be declared at the same rate, payable on Oct. 10. After payment of these two dividends there will remain a balance of 2209*l.* 7*s.* 9*d.*, which it is proposed to carry forward to profit and loss new account. It has been deemed desirable to enter into negociations for the purchase of an adjoining property, considered to be advantageous for the purposes of this mine, and which will give the company the ownership of the mining property between the Sierra Buttes Mine and Sierra City, and embracing a length of about a mile upon the ledges contained in it, together with all the water and other mining rights appertaining thereto. Irrespective of the intrinsic value it may possess as mining property, its acquisition will afford greatly increased facilities for working the Sierra Buttes Mine. The terms arranged between the agents and the owners of the property are considered to be unusually favourable for the company. During the half-year 4514*l.* 16*s.* 2*d.* were expended upon permanent works; this, with the previous application of revenue in the same way, makes a total amount of net earnings which have been applied to purposes of capital up to June 30, 19,350*l.* 4*s.* 2*d.* In order to adjust the accounts, and to provide the amount required to cover the contemplated purchase, it is proposed to capitalise a sum not exceeding 20,000*l.*, or such smaller sum as may be found adequate, and to write off the remaining balance to current expenses, together with any further small expenditure for improvements to the end of the present year. To effect this the directors recommend the creation of a sufficient number of ordinary shares of 2*l.* each, to be offered *pro rata* to the holders of the original shares at par—1*l.* per share being payable on Jan. 5, and 1*l.* per share on April 5, 1874. So far as the directors can foresee, the only purposes requiring additional capital having been, with unimportant exceptions, already accomplished, the whole net earnings should henceforth be applicable to dividends. The new Hanks mill of 30 stamps was started towards the end of January and has done the work of an ordinary 40 stamp mill, having crushed in the 151 days it was run 9044 tons of quartz or an average of 1800 tons per month, which is very satisfactory. The gross amount of bullion produced in the half-year was $206,441·50, against $211,134·03 for the corresponding period of last year. By the increase of the milling power the directors had anticipated the results would have been larger than heretofore, but it was found necessary in the second half of 1872, when the productive power was reduced, consequent on the erection of the new Hanks mill and the relaying of the flume, to use a greater quantity than usual of the rich ore in order to maintain during that period the revenue of the company at its ordinary point. This has had the effect of reducing the subsequent average yield of the quartz, which has considerably affected the profits. The agents remark on this point as follows:—"This must remain so for the present, but as we are constantly opening up new ground, there is no reason why we should not soon come upon some rich chimneys; as has always been the case in this mine. A few such discoveries would bring up the average yield to its former standard. Although at the present moment we have not so many rich spots as we formerly had, the satisfactory way in which the Cliff ledge is opening up promises to make up for the want of them."

THE PLUMAS EUREKA MINE.—The accounts, to June 30, show that the amount standing to the credit of profit and loss account on that date was 7490*l.* 2*s.* 3*d.* On Dec. 31, 1872, the amount of profit which had been made from operating the mine was 13,350*l.*, and it was anticipated by the directors that a brief period from the time of starting the new mill would suffice to produce the small sum of 712*l.*, which was then required to make the profit sufficient to pay a dividend of 2*s.* a share. As this profit has now been reduced from 13,350*l.* to 7490*l.* some explanation appears necessary. It was stated in the last report that "there will be no returns from the mine until the new mill of 40 stamps is in operation. This mill should commence running some time in April." The mill was started on April 12, but the supply of ore being deficient, owing to the non-completion of the Mammoth tunnel, it was not until May 24 that the mill was run to its full capacity. From this it will be seen that the non-productive period practically amounted to five months, during which time expenditure for operations in progress was inevitable, and this has resulted in reducing the profit from the point at which it stood at the end of last year to the amount at which it now stands.

The CHAIRMAN said the accounts and report were made up to the end of the six months ending June 30, and there had now been presented a full statement of the Eureka accounts. The Sierra Buttes accounts showed a balance of profit available for dividend of 19,709*l.*, which was about 2000*l.* more than was required to pay the dividend. This result has been obtained under very adverse circumstances, for they had not only had to meet very heavy expenditure, but also the quality of the ore had been low, the yield having been $8 15c., against $13 in 1872, equal to a difference of 10,000*l.* sterling on the amount milled. That such a result should be obtained at all, under such unfavourable circumstances, must be regarded as satisfactory. Shareholders must be aware that as the milling capacity was increased, and larger bodies of ore had to be extracted, the proportion of low grade must necessarily increase. It had this advantage, that in breaking out this body of ore there is some economy in passing everything through the mill that will possibly pay. There are several other special causes mentioned by the agents in their report. The agents say:—

"As explained in last reports, a considerable quantity of high-class ore was worked during the months that our milling capacity was reduced, on account of the rebuilding of the Hanks mill and relaying of the Lake flume. This fact, coupled with the increased crushing capacity referred to above, has reduced the proportion of first-class ore at present available, as compared with the quantity of second-class ore which we have now to extract; consequently the average yield per ton is less than it formerly was. This must remain so for the present, but as we are constantly opening up new ground there is no reason why we should not soon come upon some rich chimneys, as has always been the case in this mine. A few such discoveries would bring up the average yield to its former standard, and even now the yield could be increased for some months, but we doubt not it is your desire to work the mine with a view to permanence, and with this object before us we will continue to work the mine to the best advantage, without in the slightest degree forcing it."

Concurrently with this there were the heavy expense for working the mine. It will be observed that they had been called upon for an additional outlay for new buildings, and increasing the milling-power and many other permanent improvements. These, properly speaking, would be charged to capital account, but the capital had been so small that one of two alternatives must be adopted. Either suspend the dividend in order to meet this outlay, or provide the funds for the cost of these permanent improvements by the issue of debentures. The outlay temporarily defrayed out of income is 19,350*l.*, and the directors proposed to recommend the adoption of the last plan, and to raise 20,000*l.* by the issue of 10,000 shares of 2*l.* each at par. The matter had been discussed very fully by the board, beside consulting friends, and the general opinion was that this would be the most beneficial course to recommend; and the board wished it to be understood that they felt it to be their duty to recommend this course. The whole working capital from the commencement was only 14,500*l.*, of which 9805*l.* had been applied to permanent works, the balance unexpended being 6964*l.*, which was invested in stores and other matters at the mine. Therefore, absolutely they had no capital for increasing the milling-power or to meet the further requirements of the mine. If they considered for a moment the large extent of their operations they would find that the proposed capital, from 14,000*l.* to 34,000*l.*, was not at all too much for such an undertaking. The new shares would be issued *pro rata* among the whole of the present shareholders; therefore, if any benefit was to be derived it would be received by each shareholder. Another demand was made upon their capital by the acquisition of an extension of their property upon the same lode. Its aquisition was very desirable, and the terms upon which it could be acquired were very favourable. It would give them about 6000 ft. on the lode, and add immensely to the value of the Sierra Buttes property. The agents' report upon the state of the mine was very satisfactory. There was the same abundance of low ore, and the mine was still well in advance of the mills. They had recently received news that the sixth level, on the Ariel ledge, had improved, to which they attached great importance. Speaking of this sixth level, their agents stated:—

"Hardly any work has been done on this level during the past six months, farther than running a cross-cut in search of the Cliff Ledge, which, we are pleased to say, had a successful issue after running 90 ft. The ledge when struck was somewhat mixed with gouge, but on drifting upon it a few feet we found a solid ledge about 5 ft. thick carrying gold, which, though of low grade, will pay to extract, as the gold is very free and bright, and it costs but little to work it. The ledge is very similar to what we had in No. 5 overhead, and we trust that on more work being done it will prove a valuable addition to the mine. Considerable stoping was done immediately to the east of the first rise or shaft. The ore here has not proved very good, but it is easily worked, and we are pleased to say that of late it has improved. A new rise has been made connecting these stopes with the fifth level, so as to get bed rock to fill in with, since, owing to the heavy ground here we are obliged to fill in with waste, as timbers require constant renewing. Some stoping was also done west of the fourth or Finney's rise, but it was very wet, and the men, when miners were scarce, were independent, and refused to work in such places. The ledge here, though small, is of good quality."

This level (continued the Chairman) was begun at the early part of the existence of the company, and hitherto had been worked without producing anything of value. The superintendent writes on Sept. 6:—

"The cliff has been run west 14 feet, good pay, ledge very large."

The agents in California, under date Sept. 30, telegraphed:—

"Buttes sixth cliff developments satisfactory, and mine generally looking well; water supply rather limited."

It was important that these developments continued satisfactory after three weeks, because it showed that they had struck a very considerable body of ore at the lowest level in the mine, where hitherto ore had not been found, which seems to prove that the mine goes down to any depth, which it had never been doubted, but until now they had never possessed any actual proof. The general state of the mine and the business of the company was very satisfactory—it was unfortunate that they had to incur such a large outlay in permanent improvements, although they were likely to last for a long time, and the Hanx mill had increased their stamping-power by 14 heads—indeed, its crushing capacity was now equal to the Coulter mill, which had 40 stamps. As to the Plumas Eureka, which at the time of the last meeting was in a state of progress, the whole position of the mills had to be altered, and, by the acquisition of the Mammoth tunnel they were able to attack the mine at considerable depth—the outlay for this had been very considerable, and, as was usual in most cases, considerably in excess of the estimates. At the last meeting the accounts showed that they had earned a sum which was 700*l.* short of the amount required to pay the dividend, and they reasonably expected the first operations of the new mill would enable them to complete the amount necessary, but they were disappointed—the works proving more costly, and the delay in finishing them greater, and the average yield of the ore was only $7·32, instead of $18, which they had calculated upon. That created a good deal of anxiety, as they had reason to suppose it would reach $18, inasmuch as in the old mill it had yielded $24. Under these circumstances, Mr. Johns, an expert of considerable experience, visited the mine, and investgated the whole matter, and his report was by no means reassuring. He described the state of the mine, and stated that the bad clean-up arose from an improper selection of ore and general ignorance in bad milling. The agent then appointed a Mr. Cliff, an Englishman of very considerable experience—indeed, what he had already done showed that he had a pretty good knowledge of mining—and the result of the first month's milling under his direction was $20,000, giving an average of $9, and $21,000 in August an average of $9. Mr. Cliff gives a very encouraging report about it, which is supplemented by a telegram from the agents, as follows:—

"Eureka Harper level lode still strong in face, 5 ft. wide, fine ore; lode in winze 7 ft., walls good, ore rich, prospects very encouraging."

This (continued the Chairman) only showed how absolutely difficult it was to form an accurate opinion of a mine without actual working it and milling the ore. They had reason to hope that the works inaugurated would still go on increasing, and develope large bodies of ore. The amount credited to profit and loss was 7490*l.*, since then they had received 400*l.*; they were not yet in receipt of the clean-up for September, but if the returns, as they had every reason to expect, they would be able to pay another dividend in January of 2*s.* per share, and they hoped to continue them in future if the produce was maintained, which seemed now established. He then moved the report and accounts be received and adopted.——Mr. WRIGHT seconded the proposition; which was put and carried unanimously without discussion.

The CHAIRMAN mentioned that towards the next dividend of 2*s.* they had in hand an amount equal to 1*s.* per share. He (the Chairman) then proposed that, in accordance with the recommendation in the report, a dividend of 2*s.* per share be declared (free of income-tax), payable on Oct. 10.

Mr. H. NEALL seconded the proposition, which was put and carried unanimously.

Upon the question of the increase of the company's capital some discussion ensued, resulting in the adoption of a resolution (proposed by the CHAIRMAN, and seconded by Mr. WARDROP), that for the purpose mentioned in the report the capital of the company be increased by 20,000*l.* by the issue of 10,000 shares of 2*l.* each, to be issued upon such terms and conditions as the directors may determine, provided that they be offered *pro rata* to the holders of the original shares of the company.

Mr. J. R. UPTON (the solicitor) stated that the original shares included the deferred shares.

The proportion of new shares will be one to ten of the old shares.

A vote of thanks to the Chairman and directors concluded the proceedings.

GNOLL COLLIERY COMPANY.

The fourth ordinary general meeting of shareholders was held at the offices of the company, 7, Westminster Chambers, on Wednesday, Oct. 4, Mr. F. J. HESELTINE in the chair.

The CHAIRMAN, in opening the proceedings, congratulated the shareholders on the very favourable circumstances under which he met them on this occasion, and read the following report:—

In presenting to the shareholders the statement of accounts for the year ending September, 1873, the directors have much satisfaction in reporting that the difficulties which have been met with in opening out this colliery have at last been so far overcome that the company is now raising and selling coal.

Pumping Engine, Pit No. 1.—The work of pumping out of the old colliery has been accomplished, and the permanent forcing pumps substituted for the temporary lifting pumps, which have been used until this month. This involved cutting down and enlarging the pit to receive the permanent pumps, which occupied much time and entailed considerable outlay. By the successful completion of this work the pumping power has been greatly increased, while the consumption of coal has been considerably reduced. The importance of this causes the directors to give priority to in the report.

No. 2 Pit.—This pit has been enlarged, fitted with winding engine and cage to Greenway seam, thus commanding the three upper seams of the colliery—the Little, Hard, and Greenway, which contain a total thickness of upwards of 12 ft. of excellent coal. The lower, or Greenway seam, has been opened out for working, and is now producing coal which finds a ready sale in the district at good prices. As the heading and other works necessary to enable the coal to be raised were only completed at the end of August, the output has at present only been small, but it will be increased as rapidly as the stalls and headings can be opened out. The coal that has been raised is being sold at the following prices:—Large coal, 18*s.*; through coal, 15*s.* to 16*s.*; small coal, 11*s.* at the colliery. These prices are not the highest that the quality of the coal will command, owing to the output at first being mixed with soft and dirty coal. Some of the Greenway coal from this pit has been tried at a neighbouring tinworks, and pronounced to make excellent coke. It is intended to open out the upper seams as soon as it can be accomplished without interfering with the working of coal in Greenway seam.

No. 3 Pit.—This pit has been sunk to the lowest seam yet proved on the property—the Western Moor, which was proved 2 ft. 1 in. thick at a depth of 135 yards. This pit also commands the Little, Hard, and Greenway seams to the rise of No. 2 pit. There is a considerable quantity of coal left in the old workings adjoining this pit, and capable of being raised from it. Arrangements are being made to work this at once, and to leave the further opening out of the Western Moor for the present.

Llantwit Level.—Coal has been worked continuously from this level in small quantities for the engines during the last eleven months, during which time the coal has been advantageously used to supply the engines. The coal is of good quality, but at present rather soft. Enquiries are, however, being made to purchase it; it is expected that shortly the output will be considerably more than the engines require, when the surplus will be sold.

From the reports of the managers, Messrs. Shelford and Robinson, the directors calculate that by Christmas the colliery will be earning a net profit of 25*l.* per day, which will be increased as the workings and output are extended. It is anticipated that the net profit of the next six months' working will be equivalent to a dividend at the rate of 15 per cent. per annum, after paying debenture interest and all charges. The particulars of the expenditure, &c., will be ascertained by reference to the balance-sheet. The directors congratulate the shareholders upon having at length overcome the many difficulties that have been encountered, and upon the colliery being now in a position to reap the benefit of the present high prices.

The meeting was then addressed by several shareholders, who expressed their satisfaction with the favourable report that had been laid before them.

A vote of thanks to the Chairman and directors was cordially passed, and acknowledged by the CHAIRMAN, who said that he hoped at the next meeting of shareholders the colliery would be earning a good dividend.

WHEAL SETON MINING COMPANY.

The quarterly meeting of adventurers was held at the mine, on Monday, when they had the satisfaction of receiving a second dividend, which although not so large in amount as the one declared at the first meeting, which followed the appointment of Capt. Teague as manager, yet exceeded the expectations of many of those who were present, most of whom anticipated, even with some degree of pleasure, the bare announcement that the mine, during the past three months, had managed to pay its costs. Few, if any, looked forward to a 10*s.* dividend. That the dividend was not so large as that declared three months since is due to the fact that somewhat heavy expenses have been incurred in improving the dressing-floors and other surface workings, besides which the ordinary operations of the mine have been to a certain extent interfered with by the erection of additional stamps, which, in the interests of the mine it was found necessary to erect. These are exceptional costs, which will not appear again in the accounts, with the exception of the stamps axle, which has not yet been charged for, and at the next meeting it is confidently believed that not only will the expenses be reduced, but that there will also be an increased credit for tin. In these depressed times it is a great thing to be able to pay a dividend at all, and to all appearances Wheal Seton has before it a future that will fully compensate its adventurers for the unfortunate past. The meeting was presided over by Captain Teague, who read the statement of accounts, from which it appeared that the labour costs from April to June amounted to 1783*l.* 11*s.* 3*d.*; merchants' bills, 844*l.* 1*s.* 10*d.*; dues, 114*l.* 18*s.* 9*d.*; doctor's pence, 19*l.* 12*s.* 3*d.*; vice-warden's assessment, 3*l.* 11*s.* 3*d.*; total, 2765*l.* 15*s.* 4*d.* The credits were, 2154*l.* 18*s.* 4*d.* for 29 tons of tin; 365*l.* 7*s.* 3*d.* for 78 tons of copper; 290*l.* 15*s.* for arsenic; 145*l.* 19*s.* 2*d.* for old materials; and 3*s.* 9*d.* extra carriage for tin—total 2957*l.* 3*s.* 6*d.*; showing a profit on the three months' working of 191*l.* 8*s.* 2*d.*, and a balance in favour of the mine of 744*l.*

The agents' report was as follows:—"In the 210 fm. level, driving west of engine-

shaft, the lode is worth for tin 12*l.* per fm.; driving by six men at 2*5l.* per fathom. In the 180, driving west of engine-shaft, the lode is yielding good stones of copper and stamping work for tin. We hope for an early improvement in this level, as it will shortly be under the winze in the 170, where we have a lode that will produce 4 tons of copper ore per fathom; driving by four men, at 1*3l.* per fathom. In the winze sinking under the 170, west of shaft, the lode is yielding fully 4 tons of ore per fathom, of good quality, and is most promising in appearance; sinking by four men, at 8*l.* per fathom. There is no alteration in the winze sinking under the 120 since our last meeting.—South Lode: In the rise in the 150, west of shaft, the lode is worth for tin 15*l.* per fathom—a very kindly lode, and in about three months from this time we hope to communicate this with the winze under the 140, when a good piece of tin ground will be laid open, and made available for stoping. We have six men and two boys in this rise, at 26*l.* per fathom. The stopes are much the same for the production of mineral as for some time past, and the dressing-floors are much improved for the returning of tin, and are about complete."

Captain Teague added that he was very unwilling to touch the balance which remained in hand from the last meeting; but, at the same time, they were entitled to the profit which they had made during the quarter, and he thought they would be justified in declaring a dividend of 10s. per share. (Applause.) He was in hopes that they would have been able to increase rather than reduce their dividends, but Wheal Seton had suffered, like other mines, from the lowering price of tin, and the depressing circumstances which surrounded it. Still, however, he thought they had reason to be thankful that matters were no worse, especially when they remembered that some hundreds of pounds had been laid out in very necessary surface improvements. At their next meeting he trusted they would have an increased credit of tin.

On the motion of Mr. MAYNE, a very hearty vote of thanks was given to Captain Teague, for his able management of the mine, and that gentleman in acknowledging the compliment said he hoped they would never meet under worse auspices than they did at present. He should have been much better pleased if they could have declared the same amount of dividend that was paid at the last meeting, and even an improved one, and but for the reduction that had taken place in the price of tin and copper they would have been in a good position to do so. He was very hopeful that at no distant date there would be an improvement in the price of minerals, and when that time came he had no doubt that Wheal Seton would share in the improvement to an extent of which the adventurers might have no cause to complain. At present, looking at all that had occurred, he thought they had reason to congratulate themselves on the healthy state in which the mine stood.

GREAT WESTERN COLLIERY.—A special meeting of this company is convened for Monday, when the directors will seek authority to purchase a colliery adjoining the company's property, and to raise the necessary funds. A resolution will also be proposed to limit the directors' remuneration.

WHEAL BASSET.—At the quarterly meeting (Capt. James Evans presiding) the accounts showed a profit on the three months working of 117*l.*, and will reduce the debit balance of 631*l.*, shown at she last quarterly meeting, to 514*l.* The expenditure for the three months amounted to 795*l.*, and the receipts for the same period to 807*l.*, leaving a profit for the three months of 117*l.*, while deducted from this debit balance of 631*l.* shown at last meeting reduces the present balance against the adventurers to 514*l.* During the past twelve months about 10,000*l.* have been spent in machinery and permanent works in connection with this mine.

For remainder of Meetings see to-day's Journal.]

NEW TREATMENT OF GOLD AND SILVES ORES—PAUL'S AUTOMATIC MILL.

Recent experiments in Utah, Nevada, and California having directed attention to the system of amalgamation known as Paul's process, we devote considerable space in this issue to the first correct description of the new automatic mill which has yet appeared, as the subject is one of great interest to the mining community. The method has been known for several years, but is only now coming into extensive notice, like many other inventions—the Stanford self-feeders for batteries, for instance—which are only now coming into general use on the Comstock and elsewhere, after 14 years from the time they were first patented; in that case but for the renewal of the patent through our agency, the inventor would have lost all benefit of a valuable patent. The idea of handling ores and mercury, automatically, has been attempted separately with success; but the effort of making a mill from beginning to end, weighing, registering, cleaning up and all, automatic, has not been before attempted. Why all the work connected with milling ores cannot be done mechanically we cannot see. At all events, Mr. Paul has struck out in a new and very important field, which we think will tend to enhance the value of our quartz mining interests. The system of amalgamation as well as the mill embraces new ideas, and will be read with interest.

This mill and process, on which Mr. Almarin B. Paul, of this city, has been so assiduously engaged for the last six years, is at last fully completed, and all who have examined into its merits and details pronounce it not only complete in its operation, but perfectly practical in every respect. Of the last mill erected at Springville, Utah, Mr. Cole Saunders, of Montana, who visited it, thus expresses himself in the Salt Lake *Herald*:—"It is the best-constructed automatic mill I ever saw, and does fully all that is claimed for it in the way of crushing ore. The amalgamating barrel and settlers work beautifully, and four men in 24 hours can do the work of 10 men in an ordinary mill." The owners of this mill, in a card which we published several week since, pronounce the mill a splendid success, and ordered a duplicate; no higher recommendation could be given.

From the very incipiency of this new plan of "electro-chemical dry amalgamation," and from the fact that Mr. Paul, a man of over 20 years practical experience with quartz machinery and ores, was giving it his attention, the Press has had great faith in its resulting in an important advance in modern milling operations. Making machinery perform the labour of men is one of the great features of American inventors, and the skill displayed in this respect excites the wonder of Europeans as well as ourselves. The machine should be seen at work to be appreciated. Our readers must understand, first, that all the ore is crushed, pulverised, and the precious metals amalgamated "electro-chemically" in a perfectly dry state, water being only used for separating. The operation begins by loading a hopper with quartz for the stamps. This hopper can be made of any size, to hold pounds or tons. The stamps when in motion operate on the automatic feeder connected with the hopper, and the battery is thus fed with more exactitude than by hand. The battery reduces the ore coarsely—say, to the fineness of No. 30 wire, or 900 fine—thus enabling the battery to do double the work ordinarily done in dry crushing. The crushed ore drops or an incline plane and slides down an endless belt, which conveys it to the hopper of the pulverising barrel. This barrel being self feeding, the ore is at once delivered inside for further reduction. The reduced quartz from the battery is here triturated by larger pieces of quartz by the revolution of the barrel. The ore is here chemically treated and warmed by electric heat. The barrel is so arranged as to be self-discharging, and as fast as the ore becomes fine enough it passes out of the way. By a very complete arrangement of sieves the ore finally passes through No. 90 wire mesh or 8100, at the same time at least half the ore will pass through a 10,000 mesh, making an average fineness of about 9000, or 10 times finer than when it leaves the battery.

It has been acknowledged by all experienced quartz miners that down to a certain fineness no system of reduction has been found so cheap as stamps, but to reduce ores to powder, the wear and tear and expense as compared with work done has made them objectionable to many. This one plan of bringing ore to a flour, by a plan which would be sufficiently expeditious, and at the same time simple and cheap, cost Mr. Paul a great deal of labour. The ore, as it passes by its own gravity from the screen, being tightly encased, falls upon the floor, and is immediately taken up by the conveyor and delivered to the elevators, such as are usually used in flour mills. These deliver the ore into a hopper, where the ore is weighed and registered automatically, and by the movements of this weighing arrangement a signal is given, notifying the amalgamator that the charge is ready. The position of the amalgamating barrel is such that opening by a valve all the ore in the hopper at once delivers itself into it, and without making any dust. Into this barrel goes the mercury and some more chemicals; it is then closed and set in motion. During these revolutions Mr. Paul claims "that the metals and mercury are in such electrical conditions that the base ore is in antagonism with the mercury, and cannot be amalgamated while the precious metals are in harmony and become absorbed by it." Amalgamation completed, which generally requires from 30 to 60 minutes, the ore from the amalgamating barrel is delivred into a main settler, where water for the first time comes in contact with the ore. The settlers differ but little from the ordinary settler, excepting they are more complete in many essential parts. To this settler is attached an apparatus whereby the mercury precipitated and gathered at once leaves the settler, carrying with it its charge of the precious metals in amalgam, either gold or silver. If gold, it is deposited in one receiver; if silver, in another. These receivers are, in fact, safes, where the treasure can be held under lock and key if so desired. The surplus mercury after depositing the amalgams, then passes unseen through iron tubes to a point where it is taken up automatically, and the amalgamator finds it when wanted at the barrel ready for using again.

This "cleaning up," as it were, goes on at every charge delivered into this settler. The operation is performed without a grain of sand or a drop of water being discharged. It is based on the specific gravity of the different metals and ores, regulated by a dial; its work is very perfect. After an hour's operation in this settler from 90 to 95 per cent. of all the mercury is discharged, as also its amalgamated metal. The material in the first settler is delivered into a second, where the ore is again treated according to the character of ores being worked. The ore in this settler after treatment is "quicked" as usual in the patio and discharged as in the first settler. A third settler is used when the character of ores requires, the aim being to treat the combinations separately, and, if desired, the base metals, such as lead and copper, can be precipitated and taken up in amalgam by this settler. From this settler the whole material passes over blankets, which are washed automatically. The amalgamator, it will be seen, is only required to give his attention to the operation at stated periods to open valves and draw plugs. He has not a pound of anything to lift. One of the most remarkable features connected with the system, Mr. Paul tells us, is that it applies as well to gold as to silver, and silver as well as gold, and that no base metals, of any form in metalliferous ores, are taken up by the mercury unless so desired, while in all other systems they cause trouble by becoming incorporated into the amalgam, and cause great loss of both mercury and metals. This fact is one which Mr. Paul has found it difficult to get the mining community to accept. But they cannot dispute it in the face of so many practical proofs. The Utah mill produced bullion 995·1000 fine. Mr. Paul thinks he has discovered some new electical law, as applied to metals, and which we understand he intends applying in some other direction as soon as he gets this work sufficiently before the public, so that it will require less of his attention. And in this is the secret why the whole science of the system has not been laid more openly before the public. The benefit of a system which produces almost pure gold and silver at so small an expense as from $3 to $5 per ton of ore is beyond calculation. This system Mr. Paul has styled the "American Barrel System," as distinguished from the "Freiburg Barrel System."

Another good feature connected with this mill is that every single portion can be stopped or started without interfering with the working of any other portion. Notwithstanding the mill is so thoroughly automatic and cheap in working, it is cheap in construction and operation. It is to be hoped that Mr. Paul's labours will be fully rewarded, as he has consumed much valuable time, to say nothing of thousands of dollars, in experiments during the years he has been engaged on the invention. But few individuals would have prosecuted the work so persistently as he has and been so careful in their experiments.—*Mining and Scientific Press* (San Francisco), Aug. 2.

A VISIT TO THE CYFARTHFA WORKS, SOUTH WALES.

[FROM OUR OWN CORRESPONDENT.]

A hundred years ago the son of a Yorkshire farmer, discontented with home, mounted his pony, and rode away from Normanton to seek his fortune. After a journey of many days he arrived in London. In the great city he sold his pony for 15*l.*, and obtained employment at an iron warehouse, kept by one Mr. Bicklewith, and entered into an engagement to remain for three years, at a very moderate wage. His first duties were to keep the counting-house in order, clean the desks, and make himself generally useful. In less than two years the Yorkshire boy had proved himself worthy of his master's fullest confidence; and in the course of time Mr. Bicklewith retired, and left RICHARD CRAWSHAY, the Yorkshire boy, in possession of the business.

Just at the time when Richard Crawshay was running away from home Mr. Anthony Bacon, in conjunction with some other persons, obtained at Merthyr a lease for 99 years of a tract of coal and iron, about 8 miles long and 4 miles broad. On the eve of the American war of independence Mr. Bacon built a smelting-furnace and forge for making bar-iron at Cyfarthfa. He then obtained from Government a contract for cannon, for the manufacture of which he erected a foundry and works. The contractor made money, but before the close of the war a Scotch company obtained the renewal of the Government orders. In 1782 Mr. Homfray appeared upon the scene, having taken a lease of a portion of the concern; but he could not agree with Mr. Bacon as to the management, and in a very short time he disposed of his interest to our Yorkshire boy, Mr. Richard Crawshay.

The advent of the new capitalist (who was said to be well acquainted with the iron trade) was a great event at Merthyr. The inhabitants seem to have had an instinct as to its importance. Mr. Richard Crawshay was the man whose energy, industry, and judgment were to make the fortunes of Merthyr Tydfil, and there was something prophetic in the way the little Welsh village received him. All sorts of rumours had been circulated concerning him. He had been a poor boy; he had swept out his master's shop; he had married his master's daughter; he had won a fortune in a lottery; he was going to spend his money at Cyfarthfa, and make Merthyr the greatest iron-making place in the world! So ran the prophetic legend. When Richard Crawshay arrived they rang the parish bells, took the horses out of his carriage, and dragged him in triumph up the valley through the village of Cyfarthfa, encircling, as it were, and beating the bounds of his future possessions and manufacturing triumphs.

In 1784 Mr. Homfray established the Pen-y-darren Works, and a few years afterwards projected a canal to Cardiff, which was, however, constructed by Mr. Richard Crawshay, the projector suddenly retiring from business life, while apparently in the midst of his greatest undertakings. By this time the genius of the iron trade, which was destined to do so much for the nation, may be said to have thoroughly lighted the fires of Merthyr. The Plymouth works were already in operation, and by the end of the century, Mr. Bacon having died, Richard Crawshay was the sole proprietor of the Cyfarthfa works and collieries, the development and extension of which gave him constant occupation.

Mr. Richard Crawshay while improving his works did not neglect the social and spiritual welfare of the district. He was, it is said, the originator of Sunday Schools. He built a church at his own cost, and for 15 years subscribed handsomely towards its support. The Bishop of Llandaff, Thomas Watson, the theologian, was his personal friend, and the Bishop used to tell how one day, when visiting "the benighted locality of Merthyr," Richard Crawshay begged his acceptance of 10,000*l.* for the benefit of the poor.

One day a shoeless, travel-stained lad was found in the neighbourhood of Cyfarthfa, enquiring his way to Mr. Crawshay's house. The boy, though ill-dressed and hungry, was a very bright, respectable looking little fellow, and he said that he had understood his uncle, Mr. Richard Crawshay, was a great ironmaster, and he had come on foot from Yorkshire to find him, and obtain employment. The boy was conducted to the residence of the iron king, and, succeeding in proving his relationship, was at once employed at the works. He turned out a clever and industrious youth, and was promoted according to his merits; and at the death of Mr. Richard Crawshay was bequeathed a share of 2-8ths in the Cyfarthfa Works. This peniless, but industrious and enterprising, boy from the North was Sir Richard Bailey, who died beloved by all who knew him, and the possessor of no less than four millions sterling!

Richard Crawshay neglected no means or opportunity of improving his works. He introduced various changes in the mode of manufacture, and hearing of Henry Cort working a new process of puddling at some small works near Gosport, he went there, and on coming back erected works at Cyfarthfa both for puddling and rolling on Cort's principle, and paid the patentee 10s. for every ton of iron worked under his patent. Mr. Charles Wilkins, in his valuable history of Merthyr, describes the results which followed as astounding, and in 1801 Mr. Crawshay commenced erecting furnaces on new plans at Ynysfach, a little prior to which time he had astonished Merthyr by adding to his works at Cyfarthfa a water-wheel, 50 ft. in diameter and 8½ ft. in breadth, the weight of the gudgeon alone being put down at 100 tons. "In an examination of the old magazines of this period," says Mr. Wilkins, "notices of this great wheel were incessantly appearing among the remarkable births and terrible incidents which the editors felt it their duty to bring before the public." The wheel was the work of Watkin George. It worked four furnaces, and consumed 25 tons of water per minute, and was the wonder of the neighbourhood. The remnant of this great work can still be seen in the ruined arches of the bridge in the Taff above the works. Mr. Crawshay gave Watkin George a share in the works, and for 13 years retained the services of this local mechanical genius, and on Mr. George's retirement it was calculated that the works had realised a profit of 100,000*l.* during his semi-partnership, and of which sum he received his due proportion. The produce of iron at Cyfarthfa at about this period, 1804, was from 250 to 300 tons per week. Mr. Richard Crawshay took in partners at various times, and at his death the disposition of the Cyfarthfa Works was: 3-8ths to his son William, 3-8ths to Mr. Benjamin Hall, and 2-8ths to Mr. Joseph Bailey. Richard Crawshay died worth 1,500,000*l.*

On the death of Richard Crawshay Messrs. Hall and Bailey retired, and the works came into the sole possession of Mr. William Crawshay, who, with Sir Joseph Bailey, had for some years been entrusted with the general management. William had a turn for inventions, and Mr. Wilkins says that compared with his efforts all former ones at Cyfarthfa sink into insignificance. In 1819 the Cyfarthfa Works numbered six furnaces, and in that year produced 11,000 tons of pig-iron and 12,000 tons of bars. In 1821 the establishment turned out more pig and bar iron than had been produced in the whole kingdom between 1740 and 1750, and fully half of the total yield so late as 1788. From 1817 to 1840, 613,144 tons of puddled iron were sent down the Glamorganshire Canal. The new mill was erected in 1846. It was designed by William Williams. Attached to the mill were 18 balling-furnaces and 20 puddling-furnaces, which in March, 1847, turned out 6144 tons of rails; and in the same month the largest bar ever made was turned out; it measured 27 ft. in length, 6¼ in. in diameter, and weighed 2941 lb.

When Mr. William Crawshay retired to his seat at Caversham Park, Reading, he left his son, Mr. Robert Crawshay, in charge of the works; and when he died, August, 1867, his son, Mr. Robert Crawshay, the present owner, became the sole proprietor of the property, together with the magnificent castle which his father had built on the side of a hill overlooking the rich mining valley. Mr. Robert Crawshay had the benefit of the tried and skilled assistance in the management of Mr. William Jones, Mr. Kirkhouse, Mr. T. Rees, and Mr. Pearce, and Cyfarthfa has continued to maintain its high position, while the works have been further extended. They now employ about 5000 men, and 20,000 souls on the spot depend upon them for their daily bread. There are 11 blast-furnaces (7 at Cyfarthfa and 4 at Ynysfach), 7 mine pits, and 8 coal pits; and the yield is 1000 tons of coal per foot thick per acre. The total quantity of won but as yet unworked coal upon the Cyfarthfa estates is 51,673,500 tons, and it is estimated that the present yield of 980 tons of coal per day can be easily increased within two years to 2500 tons. The steam and water power used at the works are equal to upwards of 4000 horses, and the works in full force produce 1300 tons of pig iron and 1100 tons of finished bars and railway iron per week.

Mr. Robert Crawshay and his amiable wife (who is well known among the philanthropic spirits of the age) have done much to civilise and improve the people whom the ironworks have from time to time attracted to the district. Mr. Crawshay founded at Cyfarthfa one of the best instrumental bands in the country. On his visit to some of the neighbouring watering places he invariably contributes not only to the material welfare of the town, but he gives the inhabitants the services of his band. He made the Merthyr Horticultural Exhibition a success, with his music as well as his fruit and flowers. The Cefyn Schools are his property, built at his expense, and he has given practical and valuable aid to other local educational establishments. Some years ago Mr. Crawshay became deaf, and horticulture and art are, probably, indebted to this misfortune; for during recent years he has devoted a good deal of time to his gardens (taking as much delight in them as George Stephenson took in horticulture at Tapton) and photography. Mr. Crawshay has fitted up studios at the Castle on the most extensive scale, and has produced some of the largest photographs extant, and for style, tone, and general manipulation they are only equalled by the first masters in this age of sun-pictures.

Mr. Crawshay's infirmity, his enormous wealth, and the artistic occupation of his leisure have for some time past made him desirous of retiring from active business life; and a short time since a number of capitalists entered into negociations for the purchase of the works and collieries. Last week the terms of purchase were settled, the price being something like a million and a quarter sterling. The transfer of the works to the new company will mark a new area in the history of mining and ironworking at Merthyr Tydfil; for the capitalists who have combined for this vast purchase have not only secured from the Marquis of Bute's trustees all the hitherto unlet coal in South Wales (1000 acres), but they have bought the Taff Vale bituminous collieries, consisting of about 900 acres, with 60 years of unexpired lease, and a present output of 150,000 tons; besides 83 coke ovens, 300 railway wagons, and other stock—a concern, like Cyfarthfa, in full working, and containing 7,299,000 tons of unworked coal. The new owners of Cyfarthfa appear to be laying their plans for a new and energetic development of the almost exhaustless minerals at their command, and their operations are already exciting an intense interest in the Principality.

On the eve of the retirement of Mr. Crawshay this short sketch of Cyfarthfa will, we feel sure, be interesting to our readers. It is a story of almost unequalled prosperity, as it deserves to be. A few weeks ago, on a visit to Cyfarthfa Castle, we found Mr. Crawshay and his amiable and accomplished wife surrounded by a distinguished company of guests, invited to be present at a concert under Mr. Crawshay's patronage at Merthyr. It was quite in the spirit of the famous founder of the family fortunes that the reflection of the furnaces should be flashing upon the Castle windows while we dined. Mr. William Crawshay did well to build his Castle on the spot where he had, as it were, struck the earth with his foot, and turned it into gold; and it is in keeping with the history and traditions of the house that Mr. Crawshay should elect to reside at Cyfarthfa, in the midst of his 20,000 dependents. Notwithstanding his retirement from the management of the works, he will continue to reside at the Castle, which is a fine building of local stone, with park-like grounds, and a lake supplied from the Little Taff, that runs its picturesque course amidst wood and dale to the Taff, that flows through the Cyfarthfa Works. Immediately facing the Castle are the Glamorganshire range of hills and the Aberdare mountain, the village of Penhoelgerrig dotting the hill side. On the left in the valley the Little Taff becomes especially beautiful at Pontysam Glen, where there is a small but pretty waterfall. It is only in such spots as this that one can forget for a time that the twin giants of iron and coal are busy close by. Pleasant nooks and corners, seemingly as fresh as they were before the days of the locomotive, abound in the midst of the vast coal getting and iron making community, but "time and the hour" must yet bring them within the working of capital, for the whole district abounds in mineral wealth, and furnaces must be fed, and steamships must navigate the world, and English hearths must be supplied with fuel.

Merthyr Tydfil, under the Crawshays, has grown from a village into an important town. In 1831 the population had risen to 22,083; in 1841 it was 31,977, in 1851 it had grown to 46,378, and in 1871 it had risen to 96,891; the borough of Merthyr, including Aberaman and the hamlet of Coed-y-Cymmer. A similar advance in population may be said to be going on throughout the whole of this wonderful valley, which is watered by a river running through the richest mineral district in Britain, and is traversed by the best paying line of railway in the world.

THE NORTH OF ENGLAND IRON AND COAL TRADES.

[FROM OUR OWN CORRESPONDENT.]

In the general prospects of the North of England iron and coal trades there are some features that give rise to serious apprehension. Pig-iron is still quoted at 100s. and over, but there is a very perceptible slackening of demand, especially for No. 3. This is due to several causes, which may be briefly stated. The falling off in our American exports is one of the most serious drawbacks with which our manufacturers have now to contend. It has now come to be regarded as a moral certainty that our manufacturers are being shut out from the American market. Gradually but surely our exports to that country are declining, and considering the enormous natural resources of the United States, and the rapidly accelerated rate at which they are being developed, there is little hope of England being again able to wield the monopoly she has hitherto held in the American and Canadian markets—so long, at least, as the existing prohibitory tariff continues in force. Manufacturers have been kept pretty busy for the last month with orders on German account. The new German tariff comes into operation next month, and brokers are anxious to secure early deliveries of iron into that country. With this object they have lately been putting considerable pressure upon manufacturers: but now that the crush is past there is a relapse of something very like dulness. All the blast-furnaces in the North of England are still in full employment. There is nothing to hinder the production from being maintained, as it has been for the last few months, at an exceptionally high figure. All classes of operatives, from the ironstone miner upwards, are working with regularity and steadiness. The output of ore is considerably greater now than it ever was before. For the last month it has averaged close on 130,000 tons per week. The yield of the blast-furnaces has been correspondingly great, and, unless some unforeseen circumstances interpose, there is every likelihood that the production of pig-iron in the North of England will this year be considerably over 2,000,000 tons, which, striking the average value for the year at 100s., will give a product of fully 10,000,000*l.* as the value of the crude iron manufacture of the North of England. Meanwhile, several new blast-furnaces are rapidly approaching completion. A few weeks more will see the new furnaces of the Messrs. WHITWELL in full blast. These furnaces have been built in the most modern style, with every improvement that the wide experience of the Messrs. WHITWELL could devise. Then there are the two monster furnaces at Ferryhill, each 105 ft. high, almost ready to be blown in. About these furnaces there is this point of interest, that they are the largest furnaces in the world, and ironmasters will look forward to their results with considerable interest.

The Rosedale and Ferryhill Iron Company have acquired a royalty of several thousand acres of coal near Doncaster, and they propose to manufacture from this coal coke of a harder description than the Cleveland ironmakers have yet used, and consequently capable of bearing a heavier burden in the blast-furnace. RONSON, MAYNARD, and Co.'s works at Coatham are fast approaching completion. These works are situated by the sea coast, and it is one of their peculiari-

ties that piles have had to be driven into the ground as a foundation for the furnaces. Messrs. BELL BROTHERS have three new furnaces building at Port Clarence, and it is rumoured that they have in contemplation at these works the erection of one of Ferrie's self-coking blast-furnaces, such as the Monkland Iron and Steel Company and the Coltness Iron Company, in Scotland, have recently adopted. The Ferrie furnace has not yet been tried in the Cleveland district, although the patentee is satisfied that it would suit the peculiar conditions of the Durham coal.

The only other item of information regarding the pig-iron trade of the North of England relates to the importation of foreign ores for steel-making purposes. The mines at Bilboa, in Spain, are now closed completely, owing to the revolution, so that there are no supplies of ore coming to hand from that country. In these circumstances some of the Cleveland ironmasters are turning their attention to other sources of supply. It is understood that a movement will soon be made to import ore from Portugal, and steps are already being taken with that object in view. Spanish ore costs about 25s. per ton, delivered on the Tees, and it is believed that Portuguese ore, with an equally large percentage of metal, could be delivered for the same sum, and, perhaps, even less. As it is, those ironmasters who are employed in making BESSEMER iron have had to suspend operations, and confine themselves to the production of ordinary Cleveland pig. At the Walker Ironworks Messrs. BELL BROTHERS are adapting two of their old furnaces for the manufacture of stratified iron, and one of them will shortly be put in blast. There seems a gradually widening disposition on the part of the northern ironmasters to take up the manufacture of steel. This disposition is, perhaps, referable to several causes, but to none is it more directly traceable than to the growing demand for steel as an article of commerce. For rail-making purposes, for shipbuilding, and for numerous other purposes, steel is gradually taking the place of iron; and we seem to be nearing the time of which Mr. CHARLES MARK PALMER spoke nearly three years ago at a meeting of the Iron and Steel Institute, when steel would take the place of iron as far as iron has now taken the place of wood.

The finished iron trade is somewhat more animated. One or two contracts for rails of light specifications have lately been booked at £9 10s. to 12*l.* per ton, while plates are still quoted at 12*l.* Orders, however, continue to be given out sparingly, as buyers are cautiously operating with a view to a fall of prices. There are somewhat better prospects dawning upon the shipbuilding trade. The Tyne and Wear shipbuilders have booked several good contracts of late, and at some of the principal yards old hands who were discharged months ago in consequence of slackness of work have been re-engaged. There are still over 400 puddling-furnaces idle in the North of England, exclusive of those laid off temporarily for alteration or repair, and during as this state of things continued it is impossible to say that trade is in a healthy condition.

In the malleable iron trade the wages question is now the all-absorbing subject of discussion. In a few days the Board of Arbitration will meet at Durham for the purpose of adjusting the wages rate for the next year. The ironmasters have already resolved to impose a considerable reduction in the wages of puddlers, who are now paid at the rate of 13s. 3d. per ton. It is feared that the puddlers will not consent to submit to any reduction, and it is understood that they will point to the high prices still prevailing in the coal and iron trades as a reason why they should not be asked to do so. As the Board is unable to agree together of course it will be needful, in accordance with previous usage, to call in the services of another independent arbitrator. It is already a foregone conclusion that Mr. ASTLE will be the choice of the Board—he having in previous arbitrations thoroughly won the confidence of both masters and men.

The coal trade is in a queer state. The demand is undoubtedly brisk, and prices are well maintained, but both producers and consumers are looking forward to a speedy fall. Yet, in view of this contingency, the miners in South Durham are agitating for a further advance in wages. They commenced two or three weeks ago by claiming an extra 10 per cent. from Messrs. WOOLER and CHAPMAN, of Darlington. This demand was peremptorily refused. The miners employed at the Woodifield Collieries, of BOLCKOW, VAUGHAN, and Co., then asked for an advance of 10 per cent., and last week the men employed at the Adelaide Collieries, belonging to the Messrs. PEASE, of Darlington, came down with another demand for 10 per cent. The latter claims are to be discussed by the Durham Coal Owners' Association at their next meeting. The opinion of individual coalowners is that the miners, not caring to risk a general demand for an advance in the meantime, have resolved to take the collieries in detail, and endeavour to secure compliance with their claims by putting pressure upon individual employers. It is, of course, impossible to say to what length these tactics will be carried; but if the miners declare instance *à l'outrance* the employers will be compelled, however reluctantly, to comply with their demands, or make sacrifices for which very few of them are prepared. Another question of some consequence to the coal trade is that arising out of the demand now being made by the "putters" at the South Durham collieries for payment on account of overweight. According to the provisions of the Mines Regulation Act, all payment is to be made according to weight; but this provision has only applied, so far as South Durham is concerned, to the hewers, the masters contending that 1 cwt., more or less, does not affect the "putters," who have simply to send the tubs down the incline, and return them empty. The "putters," however, refuse to see eye to eye with the viewers in this matter, and the question has at last assumed such a form that it has been resolved to bring it before the joint committee of both the miners' and the mineowners' associations. Within the last few days several large lots of small coal have been sold at 7s. 6d. per ton, but the best qualities are still quoted at 16s. to 18s. for manufacturing, and 22s. to 25s. for household purposes. In the neighbourhood of Darlington a firm of Middlesborough ironmasters have commenced to bore for coal. Hitherto no coal has been found in this district, but it is believed that there are sufficiently good geological reasons for assuming it to exist not only on the Archdeacon Newton Estate, where boring is now going on, but also underneath Darlington, and for some distance beyond. At the same time, these very reasons point to the possibility of the lowest workable seam being denuded and gone before the magnesian limestone was cut on in the Tees Valley. In other parts of the North, where coal is yet unproved, boring operations are now in progress with a view to the further development of mining industry.

NICKEL MINES.—Most of the nickel of the world, until within a few years, came from Germany, but the discovery of mines in America has entirely driven the foreign article from the market, and considerable quantities are now exported to Europe. But one deposit is being worked in America, and is believed to be the largest yet discovered in the world. The mine lies in Lancaster County, Pennsylvania, about three miles south of the Gap Station, on the Pennsylvania Railroad. It is on the high land separating Chester and Pequea Valleys, a region rich in minerals; for, besides the copper found in connection with the nickel, there are large deposits of iron and limestone a short distance south. The existence of copper there was known many years ago; indeed, it was taken out 70 years ago, but the mining was never prosecuted with much vigour, and afforded little profit. The copper was impure, but about the year 1856 the material mixed with it was discovered to be nickel, and as the depth of the mine increases so it predominates. The ore is very hard, and the mining is carried on altogether by blasting. There are a few Cornish miners to take the lead, but the rest are Americans. A Cornish pumping-engine, of 75-horse power, draws half a barrel of water at every stroke from the mine, which is 240 feet deep, and another brings the ore to the surface. The ore in appearance is iron grey, very heavy, and in some pieces the bright copper ore is very prominent. The amount taken from the mine varies from 400 to 500 tons per month. The mining and manipulation of this amount requires 175 hands employed here and at the furnaces. The ore has to be hauled in wagons about half-a-mile to the furnaces, which is situated on very high ground, and overlooks the beautiful Pequea Valley. This situation was chosen partly that the wind might carry away the noxious smoke and gas, and partly because of the stores of limestone and flint in the neighbourhood. The process adopted is first to throw the ore between the jaws of a ponderous iron breaker, by which it is reduced to small fragments weighing about half-a-pound each. Thence carts convey it to the kilns, which are constructed very much like the old-fashioned lime-kilns, except that these have a very tall smoke-stack, to increase the draft. A kiln, holding 80 or 90 tons, is filled with ore and kindled with a little wood. It burns for about six weeks, its own gas supplying the fuel for burning out the impurities. This first step towards purification is followed by a process almost precisely similar to that to which iron is subjected. There are three large furnaces, and into these the ore is put, mixed with powdered flint and limestone (the former predominating) and coke. About three draws are made in 24 hours, for the work does not stop either night or day, two sets of hands being employed. The product of the furnaces is passed through iron rollers and crushed to powder, in order that it may be more easily transported to Camden, New Jersey, where the final process of separating the nickel and copper and preparing each for market is effected. No waste is allowed. The ore dust, large quantities of which are made in drilling and blasting, is mixed with flux and clay, baked in square bricks, and reduced in the furnaces, just as is the rest of the ore. The pure nickel commands a high price, varying, of course, according to the demand, but averaging over 82 per pound. Not only does this supply all of the material for the nickel coins, but nickel is being extensively used in plating iron and other metals and in various compounds. The whole property is owned by a Philadelphia gentleman, who has by his energy and capital not only opened up a new branch of industry to the American artizan, but has taken another step towards making the American independent of other nations. Thus it is that Pennsylvania, through her valuable mineral deposits, is increasing her wealth by mining and manufacturing interests, as well as working her most valuable agricultural territory.—*Iron.*

THE AMERICAN FINANCIAL CRISIS.

As was generally anticipated, the temporary embarrassment of some of the leading American banking firms have not been followed by any such disastrous consequences on the English Stock Exchange as were predicted by the "Bear" party on both sides of the Atlantic. The United States Government, it is true, has, by some liberal and immediate measures, afforded the most salutary relief to the New York market, and its beneficial action has been felt through the other great financial centres of America. Such action is an example which should not be forgotten by our leading banking establishments, which are noted for their extreme and unnecessary caution in raising the rate of interest whenever some important failures are announced on the Continent, as well as in the United States. It should also be borne in mind that among the failures of secondary banking houses, which usually follow that of the principal establishments, there are a number of them which find under those critical circumstances a sort of accommodation in suspending payment without thus particularly attracting public attention on the weak condition of their affairs.

By this class of banks the suspension of such prominent and honourable banking firms as Jay Cooke and Co., and others of the same stamp, affording an apparent justification of their failures, is regarded more as a blessing than as a calamity. They are always easy to be recognised, by their hurry in announcing their suspension on the morrow of that of the great establishments. They are also too noisy in the well-calculated expression of their grief. This mode of accommodation is generally more resorted to in America, where failures are not considered as accidents of such a serious nature as in this country, and do not, therefore, stain to so considerable an extent the character and the names of bankrupts. It is hoped, however, that should such a convenient way of suspending business be attempted here by some worthy disciples of our American cousins it would be discovered at once, and prosecuted under the strict provisions of English laws, the enforcement of which has been the source of our financial prosperity at home, as well as of our credit abroad.

THE GERMAN ROUTE TO INDIA.

The opening of the new harbour and docks at Flushing, at the mouth of the Scheldt, has been availed of by Mr. W. T. MULVANY, of Düsseldorf, as an opportunity for agitating a system of international communication, the partial development of which could not fail to be of great commercial advantage both to this country and to Germany, whilst to Holland it would be of almost inestimable benefit. Whether the scheme is too extensive to admit of practical realisation is a question which will doubtless give rise to much discussion, but there are certain parts of the project which could be very readily carried into effect, and which would at the same time be of great importance in enabling us to extend our commercial relations with Holland and Germany. Mr. Mulvany very properly sets out with the statement that in order to obtain the maximum of advantages, and the utmost speed consistent with safety in the personal and postal communications between nations, well laid out railways by land, and deep harbours accessible at all times for the most powerful steamers by water both in the nearest practical direct route constitute plainly the first essentials of success. He remarks, moreover, that if the old railway nations of Europe will maintain their status and the superiority which they have hitherto obtained by their works they must go on, improve, and complete their systems of communications, and each is especially bound in its own interest to do so in connection with the progress of its neighbour. He regrets, as all practical men must do, that in their origin railways were not laid out upon a definite plan in each country at least, but in suggesting as a remedy that "the crooked ways must be made straight," he proposes that which few practical men would attempt even if any great advantage were to be anticipated from the change. The straightening of the routes between Flushing and Venlo, between Venlo and Hanover, and between Venlo and Cassel would be of no real practical importance, and with regard to the Venlo and Cassel line who would derive any material advantage from it except Düsseldorf and Elberfeld.

For his international lines Mr. Mulvany proposes a system which reminds one of that of Mr. Joubert, the Belgian, and which may be ranked as equally utopian; for he says that for these international lines, and especially for the main trunks of the system the railways should pass over or under every other line of communication. No level crossings of railways, roads, navigations, or even of footpaths, should be allowed, and the railway should be completely fenced on both sides. The railways should be constructed with double lines in the centre for all passenger and postal trains, the passenger traffic separated from the goods and mineral traffic, arrival and departure traffic, and buildings provided at the stations, no facing points allowed on the passenger lines under any circumstances, no head stations except at termini, and then constructed with abundant length beyond the arrival platform; and, in short, the whole construction should be adapted for running express trains at the highest attainable speed without risk of collision, whilst sleeping carriages and all the means of living should be provided in the trains themselves for the long journeys, which under such circumstances, and with such improved accommodation, would be then freely undertaken by thousands who at present prefer to remain at home. As some will have forgotten Mr. Joubert's proposition, they may be reminded that it was the converse of Mr. Mulvany's. He proposes to use the two central lines for the goods, minerals, and slow passenger traffic, and to have one large rail on each side of this ordinary railway. Upon these two large rails an engine and carriages were to run of such enormous dimensions that the axles would pass above the ordinary trains using the central lines without in any way interfering with them; and as this giant train was to have a speed of 300 miles per hour it would probably meet Mr. Mulvany's views exactly. With regard to English experience it has not been found desirable, even on English lines with the largest traffic, to use a separate pair of lines for goods and mineral traffic, except in exceptional cases, and for very short distances; and if anything could make it more undesirable and impracticable it is Mr. Mulvany's proposition to run his central or passenger pair of rails at a high level, and his outer or goods pair at a low level, and to have goods and passenger stations far removed from each other, the former as nearly as possible on the level of the country, and the latter high above the towns and cities to be accommodated.

With regard to harbours, Mr. Mulvany states that the first consideration was to determine which would be most suitable for the terminus of the international railway, and that after visiting most of the harbours from Boulogne to the Elbe, he soon saw that if Flushing harbour were properly improved, or rather if a harbour and docks were constructed and properly connected with its own deep-water roadstead and, by railway, with the continental net of railways, it was by nature, owing to its projecting position into the sea, and must necessarily be, the great harbour and *entrepot* of the future international communication for this part of Europe.

At present the conditions which were previously wanted are now fulfilled. It is connected by railway with the whole continental system, admirable and capacious deep-water docks are erected, and an outer harbour connecting it with the deep water of the roadstead, all fully adequate for the commercial wants of the port at present and for some years to come, and only deficient in one point (which, however, can be easily remedied) for the great purpose of the terminal harbour of international communication for which, he considers its position so peculiarly fits it. This point is the size of the outer harbour, into which, according to the project, the large and powerful passenger and mail steamers to and from the Atlantic, and those required for very high speed to and from England, should be enabled to come at all times of tide, day and night, without difficulty or delay deliver their passengers and mails direct off their decks into the railway carriages on an ample pier in the centre of the harbour, and then warping round to the departure platform at the other side of the pier, or to one side of the harbour, as the case might be, hold themselves prepared to leave the harbour when necessary. Fortunately, he remarks, there is little difficulty in thus extending the outer harbour at Flushing, and he wisely suggests that the Government of Holland should reserve all adjacent lands which may be required for the future extension and improvement of this important port. Nature has done everything for the roadstead to entitle it to be selected as the great terminus for this international communication, but to fulfil its mission the artificial works must be constructed so as to admit the largest Atlantic and mail steamers.

The leading ideas of Mr. Mulvany's project are undoubtedly sound, and as he proposes in the first place to utilise existing routes and lines, no fear need be entertained that all the commercially important portions of his proposed enterprise will be amply realised. That his suggestions as to the harbour should be carried out there can be no question, and that Flushing is the best locality that could be selected is equally clear; so that it remains only to consider the land system of communication, and upon this point he properly remarks that the direction of the first part of the main trunk line of railway, so that it shall best suit the diverging branches of the system it is intended to serve, is of paramount importance. The place he selects as his chief junction is Venlo, on the frontier between Holland and Germany, the position of which is unsurpassed, being nearly on the direct line from Flushing to Berlin, Dresden, &c., therefore taking the traffic to Hanover, St. Petersburg, &c., and scarcely further from the direct line from Flushing to Vienna, which would form the first portion of the direct route to Constantinople, and thence by the Euphrates valley to India. The entire project, so far as regards routes, appears to be admirably conceived, and if it be denuded of the objectionable portion relating to double railways at different levels, diversion of railways, &c., it will assuredly become one of the greatest commercial enterprises of the age. He proposes, with only the present rates of speed of the German express trains and the Dublin and Holyhead steamers, to reach Hamburg in 16 hours; Berlin, Dresden, or Munrich in 18 hours; Düsseldorf, Elberfeld, or Cologne in 10 or 11 hours; Vienna in 24 hours; and St. Petersburg and Constantinople in 48 hours, and if this be done (a feat which with his suggestions carried out would be comparatively easy) an amount of benefit would be conferred upon the commercial interests of England and Germany which may fairly be pronounced inestimable.

NEW FUEL PATENTS.

UTILISING COAL WASTE—ARTIFICIAL FUEL.—The improvements in the manufacture of artificial fuel invented by Mr. E. Loiseau have been frequently referred to in the *Mining Journal*, and it is gratifying to learn that the machinery, which he has erected at Mauch Chunk, is now in full operation, and working well. It will be recollected that Mr. Loiseau's invention consists in simply combining the small coal with just sufficient clay and milk of lime to make it agglomerate. The process commences with the distributor, which is provided with two hoppers, one for the coal dust, and the other, a smaller one, for the clay. This distributor regulates the proportion of coal dust and clay which fall into the same pit, where it is moistened with milk of lime, and then carried by a chain elevator to the mixer; a kind of pug mill with seven vertical shafts carrying arms which turn in all directions. After passing through the mixer, which has suitable openings at the bottom, the mixed mass falls into the feeder of the moulding press, which may be compared to a confectioner's lozenge machine on a large scale. The feeder is so constructed as to admit more or less of the material between the rollers according to the sized lumps required. The lumps of coal, moulded in the shape of an egg, are received from the rollers upon an endless wire-cloth belt, by which it is carried to the drying tunnel, in which two endless wire-cloth belts are arranged in the same way as the press belt, but placed one upon the other. The coal falls upon the upper one, and travels first in one direction and then in the other five times the length of the tunnel, being all the time in motion; two furnaces heat this tunnel, and in it the coal is very rapidly dried, the heated atmosphere having free access to the lumps, owing to the manner in which the lumps are moved upon the belt. The dried lumps are received upon aprons placed at both ends of the tunnel. By another elevator it is raised and passed through the waterproofing tank, receiving therein a coating of resin dissolved in benzine. The excess of this liquid being evaporated the fuel is ready for market.

Mr. J. F. CHALLETON, of Paris, has patented an invention which relates—1. To an improved treatment of peat, the ulmine contained in which is first extracted, and, after a preliminary fermentation is disintegrated by means of crushers or stampers. It then undergoes a rasping treatment, and is next sifted, to separate the lighter substances. An arrangement of apparatus is described for carrying out the above operations. Steam is next employed to decompose the alkaline ulmates, and set at liberty the organic mucilaginous matter of bog plants. After settling, a crystallised ulmine is obtained of considerable density, forming a fuel of standard quality.—2. An oven of special construction is also described for converting the crystallised ulmine into coke or charcoal, the material being supplied in a continuous manner, and subjected to different temperatures (according to the degree of carbonisation required), during its progress through the apparatus, which is heated by the gaseous products of the decomposition, the oils, pitch, and paraffin being also separted in condensing apparatus forming part of the oven.

Mr. SYDNEY HALL, of the Wear Fuel Company, Sunderland, has patented some improvements in machinery for moulding and compressing blocks of fuel, peat, clay, and other like substances. The provisional specification describes placing two tubes end to end, and in a line with one another, with a space between them. Each tube has a plunger working within it. The material to be compressed is fed through a hopper into one of the tubes, and is there compressed between the plungers, and is then discharged through the space between the tubes.

Messrs. J. T. WOODS and Baron DE MALORTIE have patented some improvements in furnaces for economising heat and burning inferior fuel. They say—"Our improvement consists in enclosing a portion of the furnace in which the combustion takes place in a fire-brick arch, fire-clay arch, or arch of other fire-resisting material, which is necessarily interposed between the burning fuel and the bottom and sides of the boiler, steam-boiler, pan, oven, &c., to be heated, and bringing the heated air and products of combustion back to the flues between the top of this arch and the bottom and sides of the boiler, steam-boiler, pan, oven, &c., in order to confine and concentrate the heat of the burning fuel, to maintain a very high temperature, to render the combustion more perfect, and to absorb and to utilise all the heat; the heated air and gas having to pass between the top of the arch and the bottom and sides of the boiler, steam-boiler, pan, oven, &c. In a furnace of this description such inferior fuel as coal dust, coke breeze, or refuse, cinders, charcoal dust, culm dust, sawdust, &c., can be conveniently and economically burned. We claim the application of our improvement to boilers and steam-boilers of every description, locomotive, Cornish, stationary, and for marine propulsion, for brewers' coppers and boilers, for all other description of boilers and pans for heating or the evaporation of water and all other fluids, for all description of ovens, for domestic heating grates, &c., for all apparatus for heating air, gases, water, or other fluids, and for all distilling apparatus."

CONDENSATION OF POISONOUS GASES.—At the recent annual meeting of the Miners' Association, at Falmouth, there was not time to read all the papers contributed, and among these was one by Mr. J. T. Rowe, of Redruth, "On the Condensation of Poisonous Gases and the Fumes of Sulphur and Arsenic," the practical value of which induces us to furnish an abstract. Mr. Rowe said he made no pretensions to a discovery, but simply introduced his arrangement in the light of an improvement in the ordinary means employed for bringing objectionable gaseous products into direct contact with water, without interfering with draught. His principle had been applied to the burning-houses at Stray Park Mine, now occupied by the adventurers of Carn Camborne, the gaseous products of which had been so objectionable that litigation arose. The case having been referred to Mr. Rowe for arbitration, he set to work to abate the nuisance, if possible, and still to enable the calcining operations to be carried on. His first object was to reduce the temperature of the horizontal flues so low as to condense the volatilised arsenic into solid arsenious acid. This was accomplished by building additional chambers in the course of the flues. The next object was to deal with the sulphurous acid gas and the products of the combustion of the coals. To effect this he constructed a tower 16 ft. high and 5 ft. by 3 ft. within, divided by a septem, or partition, into an upcast and a downcast shaft—the former 3 ft. by 2 ft., the latter 3 ft. by 3 ft. These dimensions were, of course, the result of careful calculation as to the volume of gases to be dealt with. The tower rested upon the walls of the horizontal flues at its junction with the chimney stack, into which an opening was made, 2 feet square, to carry the waste air, and so maintain the draught. The gaseous products were, by displacement of air, and consequent vacuum, driven by falling water down the downcast shaft, the water being delivered from a series of shower-boxes fed by funnels from without, so contrived as to prevent the escape of the ascending gases. In the shaft below the shower-boxes, at measured distances, were set drip-racks, formed of triangular bars of wood, the more acute angles upwards. Each rack being set in an opposite direction, and at a dead level, the effect of the whole arrangement was that the tower was filled from top to bottom with a dense spray. Thus the gases were washed, cooled, condensed, and absorbed by the water, which was collected in a well at the bottom of the condenser, and discharged into a pond. Here the carbonaceous matters settled, and the gases, by chemical affinity and action, being decomposed were rendered harmless. The water was afterwards used for dressing burnt ores. The temperature in the chimney-stack was only 8° above that of the outer air.

SOCIETY OF ENGINEERS.—At the first meeting for the session, on Monday, a paper will be read on "Recent Improvements in Pumping-Engines for Mines," by Mr. Henry Davey.

FOREIGN MINING AND METALLURGY.

Upon the Paris market, copper, after having shown great firmness, has become rather weaker. Chilian in bars has made 91*l.*; ditto, in ingots, 95*l.*; and Corocoro minerals (pure copper), 93*l.* per ton. The Marseilles copper market has been rather quiet. In Germany no important transaction has been noticed in copper. Tin has maintained its price upon the Paris market. Banca has been quoted at 142*l.*, Straits at 137*l.*, and English at 132*l.* per ton. At Marseilles tin has been quiet, and there has been no great amount of business passing. The German tin markets have been generally quiet, and there has been nothing particular to report respecting them; stocks are sufficient to provide for current requirements, and there has been scarcely any speculation. At Paris, French lead has brought 23*l.* 16s.; Spanish, 23*l.* 16s.; and Belgian and German, 24*l.* 8s. per ton. In consequence of the events which have occurred recently in Spain, and the absence of arrivals, lead has been tending upwards upon the Marseilles market. The German lead markets have also been firm. Zinc has been the object of a sustained demand at Paris, and has been advancing in consequence; Silesian zinc has brought 28*l.* 16s. per ton at Havre; and other good marks, 28*l.* 8s. per ton. At Marseilles, Vieille-Montagne zinc has made 35*l.* 4s. to 36*l.* per ton. In Germany the zinc markets have been generally firm, but somewhat inactive.

The Belgian iron trade must be said to be still suffering from depression. Pig especially, as well refining as casting, has somewhat receded in price, without any revival having followed in affairs. Refining pig has fluctuated between 4*l.* and 4*l.* 4s. per ton for inferior qualities, and 4*l.* 8s. per ton for hard iron. Casting pig has not fared better; it is offered at 6*l.* 8s. per ton, and is even disposed of in some cases at lower rates. It cannot be hoped that a revival in affairs, which is regarded as imminent, will coincide with an advance in prices; it will rather be the result of a fall brought about by a scarcity of orders or a check in the price of coal. The market for rails is more animated than that for merchants' iron, and quotations have been pretty well sustained. At a recent adjudication at the station of the Quartier Leopold prices ranged between 10*l.* 16s. and 11*l.* 10s. per ton; the average was 11*l.* 4s. per ton. The lowest tender, 10*l.* 16s. per ton, was offered for one lot by the Couillet Company. The Couillet Company, thanks to the low rates at which it has offered its rails, has concluded some important contracts, to be executed in the course of this year and also in 1874. Some orders have come to hand from Germany, and several establishments have been enabled in consequence to resume working operations. Plates are maintained at about 10*l.* 8s. per ton, but in some cases they have gone a little below that quotation. Plates have been pretty well sustained in Belgium; some orders have come to hand, both on home and foreign account. The construction workshops are without employment. MM. Van Goethem, Rallieret, and Co. have received, through MM. Verhaeren and de Jager, an order for wool-washing apparatus of unusual dimensions. This apparatus has been ordered for a Hamburg establishment.

As regards the French iron trade, it may be observed that working operations appear to be showing rather more activity in most of the French industrial centres. The general state of affairs induces hopes that transactions will become more active still during October, and prices remain firm in consequence, although they have thus far exhibited little change. Rails, plates, and axles are the articles which have given rise to the most transactions. Coke-made iron has brought 10*l.* 16s. per ton at St. Dizier and in the Nord. Pig is more nominal, and works exhibit rather considerable differences in their prices, especially as regards long-termed deliveries. The Pompey forge of MM. Dupont and Dreyfus has begun to produce merchant iron, and two blast-furnaces are being built at the works. Several other furnaces are also in course of erection in the same metallurgical group. The Marquise Company has obtained an important order for castings for water conduits for supplying the Roubaix Canal with water. The quantity of iron minerals introduced into France in the first seven months of this year was 434,829 tons. Of these minerals 149,742 tons came from Algeria, 128,070 tons from Spain, 74,924 tons from Belgium, and 60,824 tons from Italy. In the first seven months of this year France also imported 27,264 tons of iron rails and plates. The Malfidano Mines Company paid, on Wednesday, an interim dividend for 1873-4 at the rate of 1*l.* per share.

The domestic coal trade has displayed a good deal of animation in France, the approach of winter not having at all escaped the attention of French housekeepers. As is usually the case at this period of the year, domestic qualities of coal have been advancing of late in France. Upon the whole, however, the coal trade has experienced little change in France; some coalowners are making concessions in connection with long-termed contracts. In the Nord there is an active competition between native and foreign coal; this struggle has resulted rather to the advantage of the latter, especially since the execution of the first orders given out in England by a coal syndicate formed at Lille. At Lyons there is more firmness in coal quotations, in consequence of the absence of any serious competition. The French Customs returns for the first seven months of this year show that in that period coal was imported into France to the extent of 4,044,141 tons. Of this total about 2,400,000 tons came from Belgium, and about 1,200,000 tons from England. The imports of coke into France in the first seven months of this year were 332,500 tons. The Marseilles Gas and Portes and Sénéchas Mines Company paid on Wednesday the balance of its dividend for 1872, or 12s. 10d. per share.

Coal maintains its price in Belgium, but, on the other hand, coke has been feeble at somewhat unremunerative prices. It is in the Couchant de Mons that the greatest activity prevails, and that deliveries present the most animation. The extraction is limited by producers to little more than the requirements of the moment, and this circumstance partially explains the firmness of prices. The industries consuming coal are, however, giving out as few orders as possible at present. This is the natural consequence of the critical position in which many of them are just now placed. At Liége the market remains firm, but there is little tendency at present to a fresh advance, which would be equivalent to a national calamity. The Mons Chamber of Commerce has just published its report for 1872. It appears from this document that the production of coal in the basin increased last year to the extent of 689,706 tons as compared with 1871. Four new pits were brought into activity in the basin in 1872. Exploratory works are being carried on on various sites in Belgium. Complaints as to insufficient means of transport begin again to be heard in all the Belgian basins, and it is evident that the subject calls for the attention of railway managers.

The Future of Mexico.—The different railways now pointing through New Mexico and Texas to the capital of Mexico will, when their respective charters are arranged, begin to open to trade a land whose wondrous fertility and capacity of production, and the charms of whose delicious climate are but little understood by most Americans. In that "fairest land beneath the sun," all that is produced in other countries is found in greatest abundance. The grains of the cold North and the fruits of the sunny tropics alike are found. Cotton of superior quality, once planted, makes seven successive crops. Mexican wheat commands the highest price in the markets of the world. The country immediately back of Vera Cruz produces oranges exceeding those of Havana in juiciness. The export of silver is $20,000,000 annually, with but a small percentage of the known mines worked, and with undeveloped mineral wealth, whose value cannot be estimated. Fabulous stories are told regarding the gold and silver in the State of Guerrero, now inhabited by a race who acknowledge no allegiance to the central Government, but the tales of whose hospitality to strangers are freely heard in Mexico. The firm administration of President Lerdo has crushed out the rebellion headed by Lozada, an Indian chief, who held three States in his powerful grasp—Sonora, Sinaloa, and Durango. Of the former, it is said that its mineral wealth, climate, and fertility surpass those of California, and that when once the excitement begins, the scenes in Sonora will be a repetition on a larger scale of the wild scenes of California in 1849. Land can be brought there for 1 cent per acre. Sinaloa, with its precious woods; Durango, with its iron and tin; Chihuahua, with its gold and silver; Michoacan, with its fruits—will all be opened in a few years to the business enterprise of all nations. Labour being so cheap, 25 to 50 cents per day, with cheap transportation, Mexico will recover from the long prostration into which she has been thrown by the incessant revolutions, and will take her place among the great nations of the earth; where, by right of her climate and resources, she ought to stand now among the first. Schools and colleges have been greatly multiplied in the last few years. Great attention is devoted to the arts. The colleges of mining, engineering, painting, and sculpture are first-class. Religious freedom has made great progress; within the past year the Methodist, Presbyterian, Episcopal, and other churches have entered upon their great work of raising the standard of morality among the people. Able men have been sent by the various mission boards, who are now working zealously in Mexico. The various lines of steamers to Vera Cruz, and the new and wonderful railway completed last January from that city to the capital, have opened a new route for tourists, costing little, but offering a greater variety of scenery than can be met with in Europe or the United States, from the snow-crowned Orizaba Popocatapel—higher than the highest of the Rocky Mountains—to the broad lowlands, where the banana and the cocoa palm extend their long arms in the golden glow of the rich tropic sun. The people are eagerly awaiting the advent of the railway capitalists who are to give them the first start in their era of progress. But there is a small party who think they see, in the signs of the times, a deep-laid plot on the part of the United States Government to obtain a foothold in Mexico, by means of railways, with a view of ultimate conquest and annexation to the United States. This absurd view is, we regret to say, held by a few gentlemen in the Mexican Congress, and gives rise to much of the opposition to the *entrée* of American capital.—*Boston Daily Advertiser.*

FOREIGN MINES.

Don Pedro North del Rey (Gold).—Produce weighed to Aug. 29, 3341 oits.; estimate for month, 4600 oits. Letter from mine captains, dated Aug. 28: The mineral obtained this month has been of a higher standard than that extracted in July, and derived from Canoa, No. 6 and No. 8 shoots and No. 4 gully, principally from the two last named. The small amount at present obtainable from the new excavations is not sufficient to effect to any great extent the returns, but we hope shortly to stope the bottom of the mine extensively, when the returns will be greatly increased. The water has been efficiently kept out of the mine during the month, and good duty done in the 30 fm. cross-cut.—Stopes: In No. 8 shoot some small deposits are being found in the lode as we descend in it below the 25, which produce (in samples) more gold than has hithertoo been obtained. No. 4 gully has been stoped as usual, but on a rather smaller scale.—Canoa: The incline sinking below the 25, to effectually drain the stopes, is going on favourably, and the lode yelding its usual quality samples. In No. 6 shoot we are happy to state that good samples are being taken also, where being opened to prepare for stoping, at horizon of the 25. Nothing new has been seen in any other section.—Permanent Pumping Work: This work is in abeyance, except where necessary to make good partially completed work—as fixing studdles in incline, carrying up capstan shaft, &c.

General Brazilian.—T. Treloar, Aug. 26: So far we are without success, and I may be destined to leave without it, but I shall not despair up to the last minute of my departure. The presentations in the mine are strengthening the belief that the main fumtaos are south of our present explorations, so we are pushing our works in this direction with all the means at our command.

Rossa Grande (Gold).—Aug. 28: Operations in the Bahu Mine continue to progress steadily, but the force is not sufficient to prosecute the driving of the levels as fast as could be desired. The lode in bottom of the mine continues of good size and yield. Stoping is commenced in back and bottom of the 28 east; the lode at these points looks well. Owing to the scarcity of water in the Cachoeira Rego up to date we have not been able to fork the water at Richard's shaft (referred to in my last), consequently the driving of the 20 east is in abeyance. A small force is employed in the stopes in back of the 10 east, where the lode is at present 5 ft. wide, producing fair stamping work.

Richmond Consolidated.—Telegram: "Month September produce, 2240,000. Substracting $183,000, as previously cabled, from the whole month's returns, as cabled to-day, the last week's run is $57,000."

Chicago (Silver).—Telegram from Mr. Godbe, the manager of the mine: "We have since date of last cable (14th instant) smelted 320 tons of ore, producing 50 tons of bullion, value $16,000."

San Pedro.—R. M. Kitto, Aug. 26: New Shaft: The water is now down 18 metres below the 135 fm. level; we have forked 4 metres since my last. It is now twelve months since we began to sink this shaft below the 135 fathom level. We have sunk the shaft 30 metres, and driven the 150 fm. level cross-cut 17 metres, cut a plat, put in skip-road, and driven a cross-cut 3 metres towards the manto Verde, and all in the period of one year. I am sorry to say we cannot do anything more than wait with patience until the engine is erected. In the meantime we shall go on repairing and securing the new shaft from the 135 fm. level to the adit; the first thing I shall put in a ladder-road, which will greatly facilitate this work; I have got two English miners employed about this work. Our operations are confined to the following bargains and pitches:—The 135 fm. level to drive from tramroad north, 77 west, by three men; this level is driving to get over the perpendicular of the chiffon mentioned in my last report, to sink a winze instead of a chiffon as we get down to water; this end will produce 2 tons of 20 per cent. ore per fm. A chiffon sinking below the 128 fm. level, by two men, will produce 2 tons or 25 per cent. ore per fathom. A tribute pitch in the bottom of the 47 fm. level, at one-half tribute, will produce 2 tons of 25 per cent. ore per fathom. A tribute pitch at the surface, on a new manto between the the manto San Pedro and manto Verde, at one-half tribute; this is a new discovery; the tributers from here rose 20 quintals of ore last week, which gave a produce of 34·6 per cent. Another pitch at surface, on another manto, or a continuation of the last, at one-half tribute, is producing ore of 25 per cent., which I will advise of in my next; as we cannot do anything in the lower workings on account of not being able to draw the stuff, I am putting the men in places to see if we can make any new discoveries.—San Antonio Mine: I have set a contract here to six men, to sink 20 metres for 85*l.*; this is a certain bargain; the ground is congenial here for copper.—Cuba Mine: There are two men employed here to drive an adit level from the plain through the mountain. I think that there is a chance of getting a good manto of copper here.—Santa Helena Mine: I have contracted with two men to drive 15 metres on a new lode for 8*l.*, or at the rate of 8*l.* per metre. I shall take up this sett for the company if the appearance continues good. We have got out the foundations for engine and boiler, also made road for bringing up the boilers, and are now waiting for the mason to begin the mason work for hauling, &c. I am glad to say I never saw the mine look so well as it is in the bottom, and am quite sure we have got one of the best copper mines in Chili. You must not be surprised at our not raising much ores; it is not on account of the mine being poor, but on account of being so deep to draw with horses that it takes 15 minutes to draw a skip of stuff. We draw one skip of stuff and one of water, and when we are not drawing stuff we draw both tanks with water. Everything is in good working order and doing well.

Rica Gold Washing Company.—The directors have advices from their superintendent (Mr. C. R. Clarke), dated Aug. 16, from which the following are extracts:—"Since I wrote you last we have had no rains. Our water has run to almost nothing. With the assistance of the reservoir we have managed to do something. During the past week we have had a few showers." "The bed rock begin to pitch from where the front of the bank stood when you were here last, and as far as I have got in (which is about 20 feet, or more) it has pitched down on about the same grade it was rising when you last saw it. Lying on the bed rock is a streak of blue gravel, about 8 feet or 10 feet in thickness, which contains gold. Next above this is a land streak, which is 2 feet in thickness. Next to this comes a layer of light-coloured gravel about 5 ft. thick, from which I can get nothing. On the top of this comes a layer of red gravel, from 15 to 20 ft. thick, which contains gold all through it. Above this is 30 ft., of which I can say nothing about, as I have not had a cave from that height yet. By this you will see that we have got through the old Spanish workings, and reached the main bank. I have put no sluice down yet next to the bank, but am running through a cut on the bed rock, about 200 ft. long; this cut I shall use until I ascertain how deep our gravel pitches are into the hill, and then put down sluice to bottom it.

Malabar Gold Washing Company.—The directors have received advices from their superintendent, Mr. G. B. O'Reilly, dated Aug. 18, from which the following are extracts:—"We have now about 60 peons in the accquits, and since first starting in June have now completed over 1000 ft. of the most difficult part of the levelling. There is, however, still a good deal of blasting to do, in order to get rid of some of the large boulders, and this work has had to remain untouched, waiting the arrival of forge and smiths' tools. The greater part of the ditch will be in good ground, and will present no difficulties of any account, so far as we can at present judge." "By the end of this month we expect to burn off the 24 acres of forest now cut down, and then Mr. Anderson will decide as to when and how he will place his pipe and flume. In the meantime everything is being done to push on the work economically." "As far as we have been able to examine, the gravel deposit is very extensive, and promises to give good results with our large supply of water."

Malpaso Gold Washing Company.—The directors have advices from their superintendent, Mr. C. R. Clarke, dated Aug. 18, from which the following are extracts:—I sent you a very small return last clean-up, which I explained in my letter of last month. Since then we have continued to do the best we could with the water we had, which, as you will see by the water account, was most of the time almost useless. We are now expecting a wet season soon, when I hope I shall be enabled to write more cheering accounts. I am now about ready to move my bulk head to the top of the hill, which will take about two weeks, then we shall have a fall of about 225 feet, which will give us force sufficient to cut away any hard gravel we are likely to encounter. It will take about 1300 feet of pipe to reach from the machine to the bulk-head, but as we have about 1600 feet of pipe, I can wash away at least 400 feet before moving the pipe I shall now lay by merely moving up the machine and adding on the extra pipe; our bulk head will last a long time. When we move again I think we will cut off about a mile of ditch, because the ditch near the mine makes a great turn in order to follow the high ground and pass around the old works, and when we have advanced 1000 feet more we can throw out a pipe to top of bank of old works further ahead and work away all the banks over which the water passes. We are now working on top of the streak of hard cement, and using it for a bed rock, but we carry our sluice along on its regular grade, which places it some 8 or 10 feet down in the cement below the machine. Our banks are not high, but prospect well; they run from 25 to 30 feet above the machine, and about 40 feet above the sluice, and from present appearances I think in 1 0 feet further we shall be down on the sluice again, because the cement streak seems to be dipping ahead, and it is either passing out or dipping into a channel, and in either case the sluice must soon come through it, but what is better is the pay dirt on the top increases as fast as the cement decreases, and our banks all round us show dirt from 8 to 15 feet thick, and if we had 500 in. of water I feel confident we could return a fine monthly dividend. As I told you before, I am now running in with only from 80 to 100 feet face, and the ground we leave either side will be exactly the same as we wash away, so that when we reach the main bank we will be exactly the same as we wash away, so that when we reach the main bank we will be exactly the same as we wash away, so that when we reach the main bank will be exactly the same as we wash away, so that when we reach the main bank will be exactly the same as we wash away, so that when we reach the main bank

VIENNA EXHIBITION.

Important Notice.

HAYWARD TYLER & CO., having noticed that another Firm claim to have been awarded the "MEDAL FOR PROGRESS" for STEAM PUMPS, have made it their business to telegraph to Vienna, and have also applied to the Commissioners in Parliament Street for AN EXACT TRANSCRIPT OF THE AWARDS FROM THE LATEST OFFICIAL RETURN, as made to the Firm in question and themselves. Below is the reply furnished by the Commissioners to them, showing most conclusively that

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are the ONLY English Exhibitors who were awarded the

"MEDAL FOR PROGRESS,"

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Copy of Memorandum received September 29, 1873, *from the British Commission of Vienna Exhibition*, 1873.

"Extract from Austrian Official List of Awards:

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Dampfmaschine Fortschritt M.

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Translation of Words: Dampfmaschine, STEAM ENGINE: Spiesepumpen, FEED PUMPS; Fortschritt, PROGRESS.

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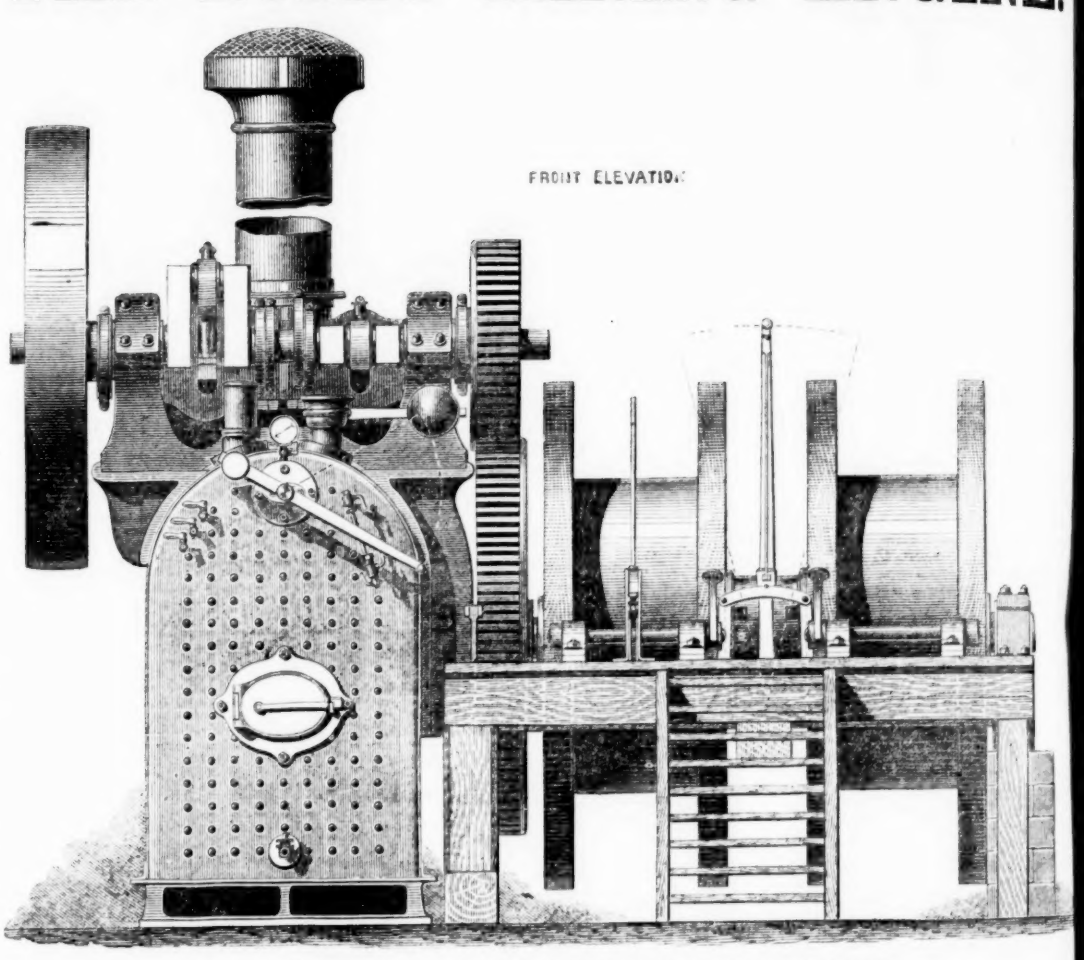

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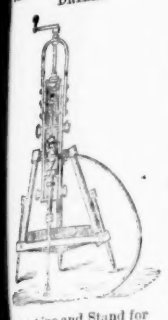

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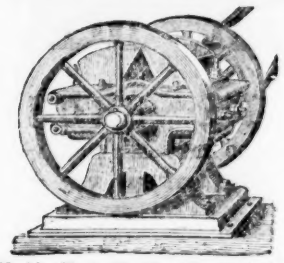

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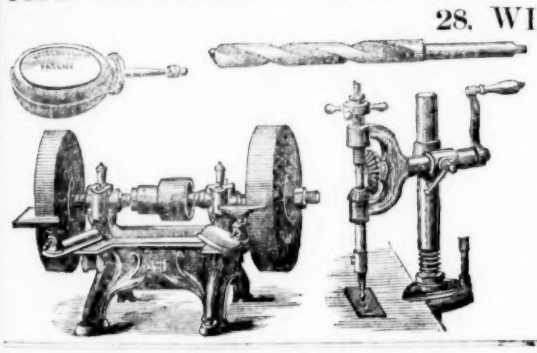

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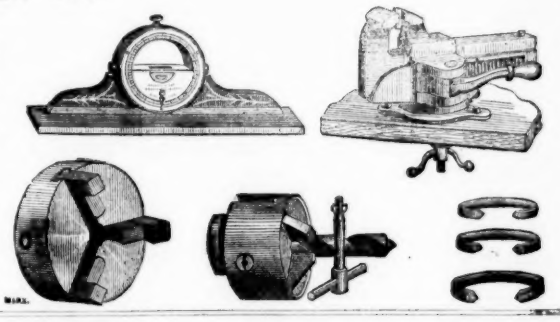

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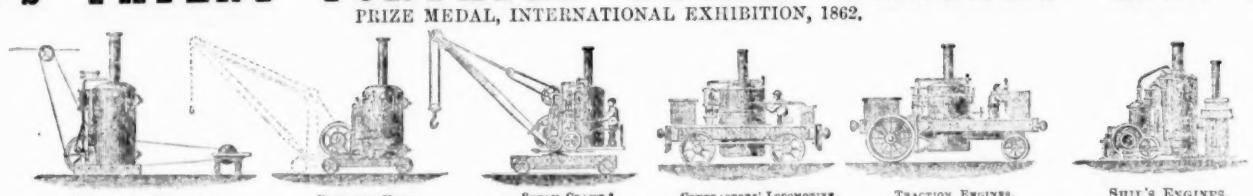

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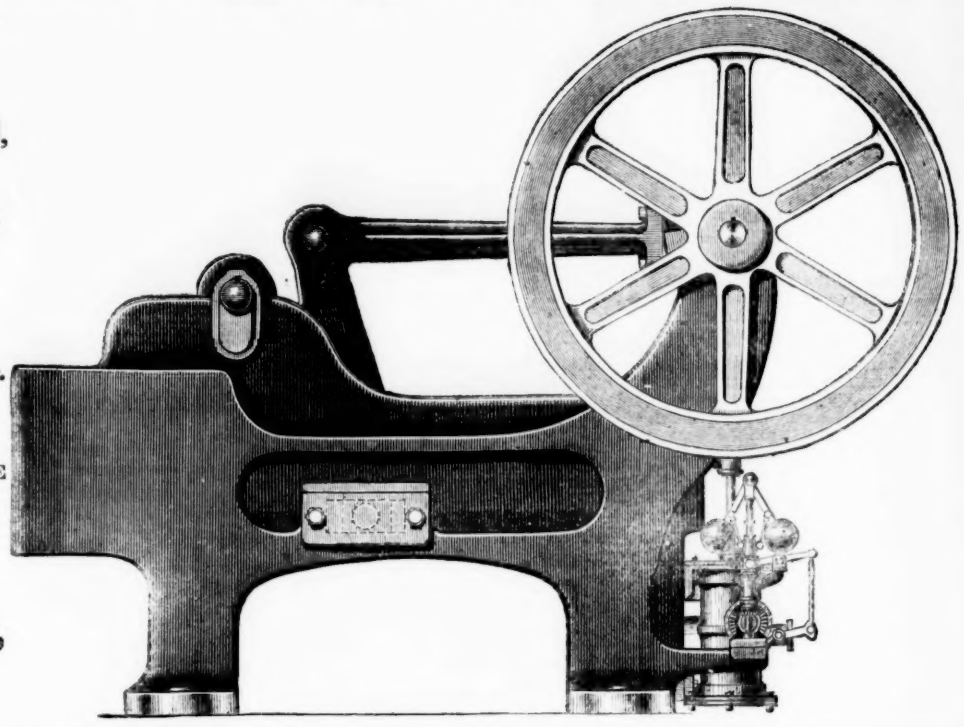

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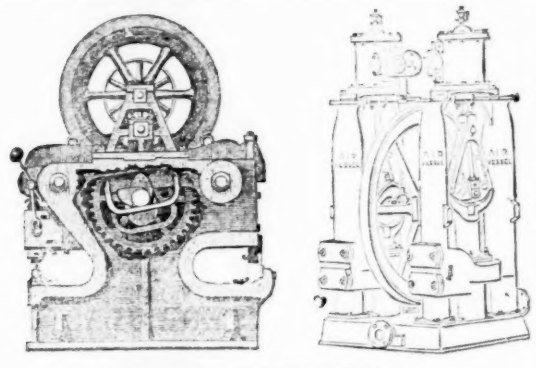

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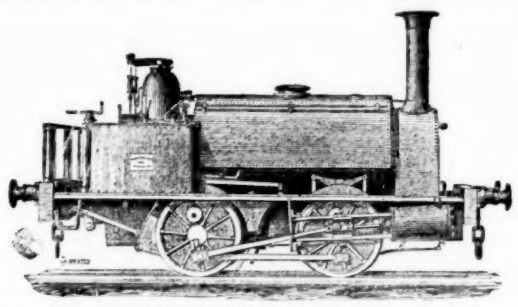

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